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Rail Road News.

Pennsylvania and Ohio Railroad.

On Thursday last, at Salem, Ohio, the contracts for the grading and masonary work of the above named road, from the Pennsylvania State line to the intersection of the Cleveland railroad, were let to responsible persons, at rates materially lower than the original estimate of the Chief Engineer. The length of this portion of the road is thirty-four miles, and is to be complete by the 1st of April next. The Pittsburg Gazette says :

With the exception of the work immediate-adjoining Allegheny City, the whole of the Eastern Division of the railroad, eighty miles in length, is now under contract. When this part of the work is ready for use, we shall have a continuous railroad communication from Pittsburg to Cincinnati, through Cleveland and Columbus. By proper efforts, this may readily be accomplished next year.

Reading Railroad.

The North American says:—"We understand that a statement showing the business of of the Reading Railroad, from the commencement of the present season up to May 1, will be shortly laid before the public; and gives us pleasure to add that the ascertained results are of such a character as cannot fail to agreeably surprise the friends of this great Pennsylvania improvement. Indeed, all the improvements connecting with our coal regions have been doing an excellent business this season—much above the average."

This is gratifying news, as the Reading Railroad was in a very poor condition two years ago.

Railroad Jubilee.

On the 12th and 13th of June next there will be a grand railroad jubilee at Burlington, Vt., to celebrate the completion of the Rutland and Vermont Central railroads to that place. There will be a Supper, Levee and Ball in John Wright's mammoth pavilion, which, it is said, will accommodate 10,000 people. It will be floored for dancing, and handsomely decorarated for the occasion. Several governors, mayors, editors, and other distinguished persons, will be invited. Tickets, admitting a genleman and ladies to the levee and ball, will be five dollars each.

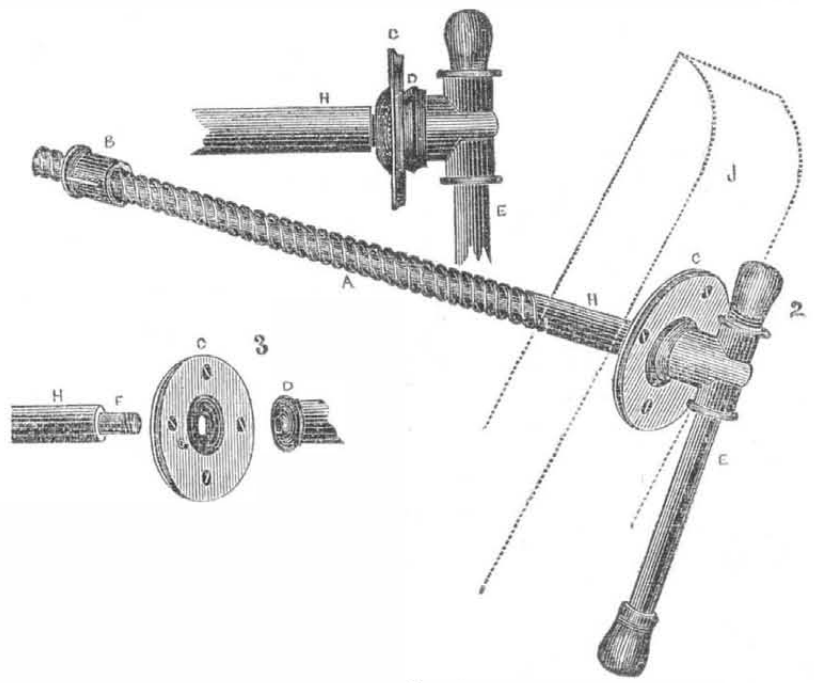
Connecticut River Railroad.

The business of the first three months of the present year, on the Conn. River Railroad, shows a handsome improvement over the corresponding months of last year. The increase of gross receipts is twenty per cent., and the net receipts much larger. It is believed that after the present year, the entire stock of the road will yield a dividend of eight per cent.

A fire occured at Woburn Centre last week and burned the wood work of two locomotives belonging to the Lowell Railroad.

The bonds of the Worcester and Nashua Railroad, payable in five years, were sold on the first inst., at 15 per cent discount.

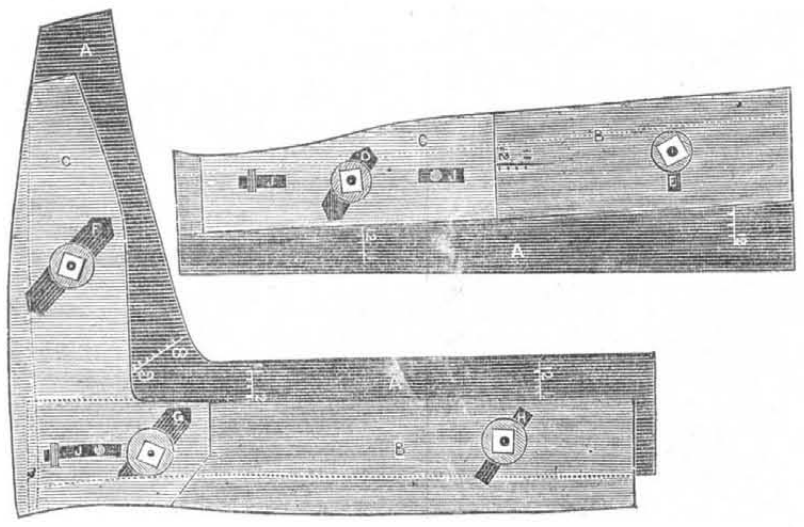
IMPROVEMENT IN THE SCREW AND COLLAR FOR WOOD VICES.---Fig. 1.



This improvement is the invention of Cyrus S. Tolman, of Hinsdale, Cheshire Co., N. H., who has taken measures to secure a patent for the same.

Fig. 1 is a sectional elevation; figure 2 is a perspective view; figure 3 is a view of the slot plate, end of the screw, and the ball and socket. The same letters refer to like parts. A is the screw of the common kind; B is the collar plate secured to the fast jaw (not represented); C is the socket plate secured by screws to the moveable jaw, J, (represented by dotted lines.) D is a ball or convex knob on the end of the handle socket; E is the handle; H is the shoulder of the screw; F is a recess or groove cut around the shoulder, H, and it has a screw on the end of it to pass through the slot, G, of the plate, C, and into a thread nut in the end of the ball, D, thus securing the plate, C to the ball, D, and in the groove, F, as represented in figure 1. The back part of the slot, G is contersunk to allow the plate to rise and fall on the ball D, at different angles, as the jaw is drawn back. The slot, G, therefore, is an oblong slot with rounded ends, to allow the jaw to move on the ball like the socket of a universal joint. It is quite an improvement also to have the plate, C, secured in a groove on the shoulder of the screw, for the jaw will move backwards without the necessity of drawing it back by the left hand, as is done in the usual way; and it can be applied to the parallel vice, and no spring will be required to push back the jaw, as is now the case. It is a useful and good improvement. More information may be obtained by letter (*p. p.*), addressed to the inventor.

SAMPSON'S APPARATUS FOR SHAPING BOOT UPPERS.



This apparatus is the invention of Mr. Jas. Sampson, of Hamilton, Canada West, and is patented by him in the Provinces. Its object is to guage the leather to be cut for the shape of any measured boot, and may be termed a "boot pattern guage." This engraving represents side views of the apparatus. Figure 1 is to measure and guage the leather for the back of the boot, and fig. 2 for the front; apparatus for the same purpose have been brought forward before, but they were all defective in one point, viz., shifting on an anotomical principle to guage the uppers uniformly, to fit them for feet of different measurements. Mr. Sampson has constructed his apparatus in such a way that it will shift, to bring the crown of the heel of the upper, in height, half of the height of the instep and on a line always, (it makes no matter how it is shifted) with the apex of the angle formed at the instep, and the point of the angle of the heel. This makes the uppers formed by this apparatus, fit for boots of different sizes upon a general mathematical principle. Figure 1 is made of three plates of zinc, A B C. A is fixed; B has a lateral motion to widen the upper by the screw working in the slot E; C has an up and down slide motion by working in the slots, J J, on guide pins, and it has also a lateral motion on the axis screw pin, D fig. 1, and the screw pins G F and H, fig. 2. This allows the outside plate to be moved up and down, and sideways also. The following are the the rules to be observed in the use of the apparatus:—Figure 1, *back*, —Move plate B until it intersects the line in the upper scale, for leg, and fasten the upper screw. Then move plate C until it intersect the line in the centre scale for the instep and spring. Then move the plate B until it intersects the line in the lower scale for the heel, and the lower screw is then fixed. Figure 2, *front*,—Move plate B until it intersects the line in the upper scale, for leg, then screw down. Move plate C till it intersect the lower scale for instep; then move plate B until it intersect the line of the centre scale, then screw down. This apparatus answers every purpose required by the bootmaker, and the inventor has succeeded in all that he anticipated from it as a thoroughly practical instrument for the purpose set forth.

Letters addressed (*p. p.*) to Mr. Sampson, care of J. Winen, druggist, Hamilton, C. W., will meet with prompt attention.

Useful Receipts.

To make Whitewash.

As this is the time for cleaning up door yards and white washing buildings and fences, we give a receipt for making whitewash, which is said (in the Horticulturist) to be one of the best and most durable character.

Take a barrel and slack one bushel of freshly burned lime in it, by covering the lime with boiling water. After it is slacked, add cold water enough to bring it to the consistency of good white wash. Then dissolve in water, and add one pound of white vitriol (sulphate of zinc). To give this wash a cream color, add one-half a pound of yellow ochre in powder. To give it a fawn color, add a pound of yellow ochre, and one-fourth of a pound of Indian red. To make the wash a handsome grey stone color, add half a pound of French blue, and one-fourth of a pound of Indian red; a drab will be made by adding one half pound of sienna, and one-fourth pound of Venitian red.

Some people put salt into their lime, but we never could see any reason for doing this, as salt absorbs moisture and is therefore more injurious than beneficial. The sulphate of zinc is an excellent drier—it being about one of the best known; the use of *it*, therefore, is important.

Substitute for Coffee.

The ripe seeds of the okra burned and used as coffee is said, by the St. Augustine News to be a good substitute therefor, and cannot be distinguished from it and that the drink is very healthy. It is the common okra so easily grown in the South, and whose excellence in soup is universally known.

Artificial Snow.

The theatrical machinists of Paris have invented a beautiful "snow" for stage effects. The "flakes are seen drifting and agitated by the wind in a manner altogether magical."—The appearance, as the snow covers the ground, perfectly resembles nature.

Plank Road Dividend.

The Waterville and Utica plank road company have declared a dividened of 15 per cent. payable on the first Tuesday in May, 5 per cent. in cash and 10 per cent. in stock.

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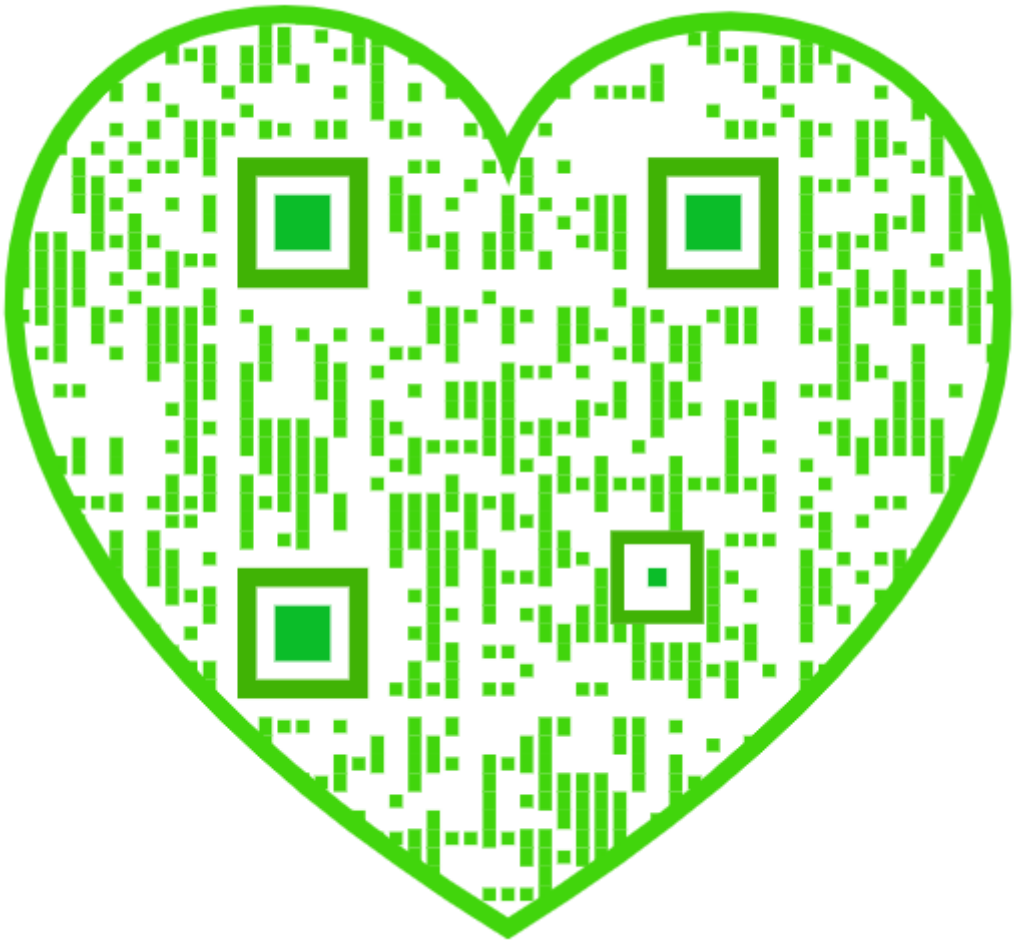

Miscellaneous.

Coal Burning Locomotive.

An engine designed by and to be built under the direction of T. Perkins, Master of Machinery Baltimore and Ohio Railroads, is now being constructed in the company's shops, at Mount Clare Depot. The engine is of the largest class, weighing 24 tons, and is intended exclusively for freight, to draw a load of 900 tons The waist of the boiler is 46 inches in diameter, 14½ feet long, and supplied with 143 flues 12½ feet long, 2 2-16 outer diameter. The fire box is 48 inches wide, by 94 inches from front to back; and 50 inches above the grate, having 1,132 feet of heating surface. The boiler is horizontal, with outside horizontal cylinders 18 inches in diameter, having 22 inch stroke of piston. The engine is supported by eight wheels, 43 inches in diameter, connected as drivers. The improvements attached to this engine are very important in view of economy in fuel and repairs. The drivers have chilled cast tyres separate from the main part of the wheel, which when worn, can be easily replaced, with comparatively little expense.—The main and side connectings are so constructed as to be of the requisite strength, but much lighter than usally found on large engines; the connectings cannot be deranged by incompetent engine-men. The smoke-box is protected by a space, surrounding it, kept constantly filled with water from the pump. This space in the smoke-box, in connection with a heating apparatus, attached to the engine, serves to heat the water before entering the boiler. The water in the heater is heated by means of a valve under the control of the engineer, who allows any portion of the exhaust steam to ascend the smoke stack, at will, for the purpose of forming an artificial draft; the remainder of the exhaust is passed through the heater, whereby the water is heated nearly to the boiling point. This engine is designed to overcome an ascent of 116 feet to the mile on the new road, (grade 16 miles long) already in progress of construction over the Cumberland mountains.

Singular Hail Storm.

The Western Texian, of the 28th ult., gives the following account of an extraordinary storm of hail with which a large portion of the State of Texas has been recently visited:

"About sunset the sky was suddenly overcast with clouds, and in half an hour the hail stones, as large as hens' eggs, were pouring down with a rush. The storm lasted about half an hour. It came up so quick that but little time was left for preperation, and the consequence was, that many windows were broken, and those most exposed were completely demolished. The peach trees in and around the city, which were all in full bloom, were stripped of their foliage and blossoms. We have not yet learned whether the planters and gardeners have suffered to any great extent, but, from the severity of the storm, we fear the damage has been considerable. It is some consolation, however, to reflect that many of our planters have not yet put their corn under ground, and those who have ample time to secure a good crop by replanting.

Volcanoes.

Vesuvius, the Neapoltian volcano, is yet in its infancy; it only counts thirty centuries of eruptions. The giant Etna which has more than four times its elevation, wasted all its destructive force before the historic times of Sicily and of all Europe. This colossal volcano is now declining in its old age, but the time which will elapse until its total extinction, may be as long as the whole of its past existence.—One may judge from this fact of the prodigious antiquity of those volcanoes which formerly burned in France, of which the fires had ceased a long time before the first eruption of Vesuvius. At the period of the entry of the Romans among the Gauls they found the lava decomposed and converted into productive soil covered with dense forests.

An oak tree, forty feet high, with three tons of soil on its roots, has been transplanted at Graisley, near Wolverhampton, Eng. The tree was mounted on a timber-carriage, and, with its branches lashed to prevent damage to windows, passed through the streets, a singular but beatiful sight.

To Preserve Ham Through the Summer.

Make a number of common cotton bags, a little larger than your hams; after the hams are well smoked, place them in the bags; then get the very best kind of sweet, well made hay, cut it with a knife, and with your hands press it well around the hams in the bags; tie the bags with good strings, put on a card of the year to show their age, and hang them up in the garret or some dry room, and they will hang five years, and will be better for boiling than on the day you put them up. This method costs but little, as the bags will last for years. No flies or bugs will trouble the hams if the hay is well pressed around them, the sweating of the hams will be taken up by the hay and the hay will impart a fine flavor to the hams.

The hams should be treated in this manner before the warm weather sets in, and the present time is about the right season in many places.

Knitting.

We saw a few days ago to model of a very ingenious machine for knitting, the invention of Mr. Holland, of Pennsylvania, who has an application for a patent now before the Commissioner. It does work, and may, by the labor of one person, be made to do as much as from twelve to twenty fast knitters can achieve. A good knitter can now make from fifty to seventy-five cents per week, by close and steady work. All ladies who think their services worth more than this should thank Mr. Holland for his excellent improvement in the art. —[Washington Republic.

[The above machine may be a very good one, and there may be something patentable about it but not because it is a "knitting machine," for Mr. E. North of No. 58 Lewis st., this city has had a gang of 8 improved "knitting machines," in operation for some time.

Washington's Address.

James Lennox, Esq., of this city, has just presented to the Mercantile Library Association, of this city, a beautiful printed copy of Washington's Farewell Address, being a fac simile of that document, and illustrated by two portraits after Peale and Stuar.t Mr. Lenox last winter purchased the original manuscript of this address for $2,000, and has printed 54 copies folio and 175 quarto, for presents.

Artful Device.

A printer of Greenock, Scotland, having been fined for printing news on un-stamped sheets of paper, now prints upon cloth, which is not specified in the act, and calls his journal the Greenock 'Newscloth,' in allusion to that material. In the debate on the paper duties on Monday night week, Mr. Gibson handed a copy to the chancellor of the exchequer.

Texas.

Railroads, plank roads, and steamboats are attracting much attention, and for a plank road $60,000 have been subscribed to open an improved communication between the Brazos and Houston. A canal is also proposed between Galveston Bay and Brazos. We are happy to witness these evidences of improvement, and with them a corresponding interest on the course of education.

Chattanooga Railroad.

The Chattanooga, (Ga.) Gazette, of the 10th inst. announces that the great tunnel on this railroad has been completed, and that cars were run through it, for the first time, on the day previous. This gives an uninterrupted thoroughfare between the navigation waters of the West and the Southern Atlantic Ocean.

The Box Tunnel, on the Great Western Railway, Eng., which is 3,192 yards in length, was an object of great interest on the 9th of April, as on that morning at 25 minutes past 5, the sun shone through it. The only other periods that such an event occurs, are the 3d and 4th Sept.

Opium.

Over 50,000 chests of opium are shipped annually to China, taking off in return thirty five millions of dollars. This trade is under the British government.

Tortoise-Shell Ponies.

Colonel Davidson, in his "Diary of Travels and Adventures in Upper India," mentions having seen at the great fair of Hurdwar, a number of very curious ponies, from Uzbek Tartary. "They were under thirteen hands high," he says; "and the most curious compound of color and marks that can be imagined. Suppose the animal pure, snow white; cover the white with large, irregular, light bay spots, through which the white is visible; in the middle of these light bay let there be dark bay marble spots; at every six or eight inches plant rhomboidal patches of a very dark iron-grey; then sprinkle the whole with dark fleabites; there's a *phooldar* (flour-market,) as they call them." Some of our circus managers would do well to procure a span of these ponies A visit to the fair of Hurdwar would afford it without much trouble.

There are many ponies in Denmark which are spotted and striped, and the very dogs in that country seem to prefer being piebald to any other arrangement of colors.

Discovery of Mineral.

The Pottisville Mining Journal says:—We learn that in digging a well on Levis farm, in Mooreland, Montgomery county, Pa., some time since a quantity of copper ore, of good quality, was taken out, and within a few days indications of the existence of copper ore to a considerable extent, has been discovered on other parts of the farm. Black Lead or Plumbago, has also been discovered on that and the adjoining farm of John R. Hallowell, of an excellent quality.

Sir John Franklin Discovered.

A "spiritual rapper," (a distinct profession, now-a-days,) in Cortland county, N. Y., has been telling all about Sir John Franklin. She says he is still living, has found a Northwest passage through Bhering's Strait, and went to Yongtong, which is somewhere in Japan. Here he was attacked by the natives, part of his men killed, and he and the rest placed in confinement, where they have been for eleven months.

[" Wonders will never cease."

Deaths in New York.

By the Annual Report of the City Inspector, we learn that the number of deaths in the city last year was 23,773, of these 5,071 were by cholera, and 2,086 by consumption. These diseases claimed the greatest number of victims. The mortality of our city appears to be yearly on the increase, but not among the native population, for more than two-thirds of those who died by cholera, were foreigners, Ireland furnishing 2,219 victims. Thousands of emigrants land at this port, and become objects of charity at once. This is the cause of great expense to our city, but how is the evil to be remedied? that is the question.

The Trades.

Almost every trade in the City of New York has formed a Mutal Protection Association.—They hold regular meetings and their object seem to be to maintain, or secure good and fair wages, and a reform (in a number of cases) of working hours. The Bakers seem to be the greatest sufferers from working irregular and long hours. To carry out any reform of this kind a high moral courage and determined perseverance is necessary.

Speed on New York Railways.

The annual returns of the New York railroad companies for 1849 show the following as the average speed of passenger trains, on the leading railroads of New York:—Hudson River 30, miles per hour; Attica and Buffalo 26, Utica and Schenectady 28, Auburn and Syracuse 26, Syracuse and Utica 25, New York and Utica 22.

Insurrection in Cuba.

A number of adventurous and rash men have gone to create a revolution in Cuba, with Gen. Lopez at their head. The scheme cannot be successful, for Cuba is an Island and can easily be cut off from outward resources by a fleet which Spain has, and Lopez has not. The government has taken the most energetie measures to head off the Cuban revolutionists.

Notice to all Interested in Inventions.

Inventors having business to transact at the Patent Office will find it much to their interest to consult the editors of the "Sci. Am." before taking any steps towards making an application. All business connected with this branch is strictly confidential, and with a corps of examiners, second only to the one connected with the Patent Office, we are enabled to dispatch a large amount of business, and in such a manner as to insure the inventor against fraud and mal practice. Application should always be made to Messrs. Munn & Co., by letter presenting a clear and explicit description of the nature of the invention. In most cases a well described drawing or a model had better be sent—this facilitates the examination very much, and decreases the liability of judging incorrectly. Our charges are such that inventors in indigent circumstances can readily avail themselves of them and proceed without delay in securing their rights.

More About Paine's Light.

A correspondent to the Boston Journal named E. L. Browne, states that he visited Mr. Paine's apparatus at Worcester for the purpose of witnessing its operations and says, "while there, we saw, in one hour, three pints of pure water decomposed into its component gases, without the consumption of acid or metals, and with the use of no motive agent, save the descent of a weight of 67 pounds, a distance of a little over two feet; the gases evolved from which amount of water were employed, in our presence, both for purposes of heat and light, and which were absolutely produced without any other cost than the interest on the cost of the machine, which is about three hundred dollars."

As some of our readers wanted to know the amount of water it decomposed in a given time, the above will give them the information desired.

The Reform of the Patent Laws.

If we can judge correctly by the debates in the Senate, the Bill for amending the Patent Laws, will pass this session. The main reforms proposed, if carried, will make patentees exceedingly careful about their first specifications, as it will be morally imposible to get a re-issue to correct specifications, for the Bill proposes that all applicants for additions, re-issues or extensions of patents, shall publish notices of the same in three daily papers published at Washington, the first publication of which shall at least be 60 days before the re-issue &c., is obtained, Congress must therefore be applied to for a re-issue. Well this would cost more one way and another than the whole patent would be worth. Inventors after this must never ask for a re-issue, but make all snug at first, and the Patent Office officers must be brought to the mark for they do not do right in fulfilling their general duties, by taking charge of inventors' consciences, as they often do. There must also be a reform in the Patent Office.

The amendment to the Laws, requiring additions, and corrected specifications to go before Congress, will have an injurious tendency, for new additions are now passed upon as new inventions, and every re-issue that claims more than was in the first patent, is null and void in the opinion of our ablest jurists.—The only thing which a re-issue should cover, is to render claims and descriptions more definite and intelligible, and this is all.

Explosions on Railroads.

During the twenty years steam has been used on railroads in this country, there have been but eight explosions, viz;—New England, 1; New York, 1; Pensylvania, 2; Maryland, 2; Louisiana, 1; and one in South Carolina.

On Saturday last the wheel of the second class car of the train broke on the Norwich Railroad, Mass., a few miles from Worcester, and a number of passengers had their limbs broken.

A gentleman named McNice received a box last Monday, and thinking it a torpedo affair took it to the Police Office where it was put in a basin of water for half an hour, and then opened, displaying the destruction of two beautiful daguerreotypes of two young ladies.

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How to Cross the Atlantic in less than Five Days.

[Concluded from page 275.]

The upper works should extend only about two-thirds the length, leaving the sharp razor-like ends perfectly free to battle the waves, without being encumbered with either weight or bulk. The large waves might therefore rise entirely over the ends, without raising or straining the vessel in the least. And when sailing such vessels would cut through the waves like a knife, instead of climbing and plunging over them. In fact, independent of any calculation, their very looks would warrant a rapid arrow-like speed, while their deep perpendicular sides would give them immense strength to bear the strain of waves, their sharp knife-like forms would give the waves very little power over them.

That part of the vessel which is more than ten or twelve feet above the water, may be two or even three times greater in breadth, so as to form comfortable rooms for passengers; but the upper works should also have the same curve, in order to lessen the resistance of the air, which is very great when a rapid vessel has to meet a high wind; in fact a very ordinary wind will move 25 miles an hour; and if the vessel also has a motion of 25 miles, the resistance will be over ten pounds for each square foot of flat surface that is carried against it. This will show how important it is, to properly shape that part of a vessel which has to cleave its way through an ocean of air, that oftentimes presents even a greater resistance than the water itself.

No. 1 could be tested for less than two thousand dollars: if it would move sixteen miles an hour, No. 2 would most certainly go twenty; for No. 2 could carry eight times the power, while the resistance would be only four-fold. No. 3 could carry 27 times the power of No. 2, while the resistance it would meet would be only nine times greater, and it could therefore as surely go twenty-eight miles an hour as No. 2 could go twenty.

I do not pretend that my estimates are mathematically correct; but I do maintain that what error there is, is on the safe side; that is, were I to oversee the construction of such vessels and their machinery; they would all of them go as fast or faster than the rates I have mentioned. I have not only the evidence that my theory is plainly based on the immutable laws of nature; but I have the further evidence of such rude experiments as I have been able to make. And I have the further evidence of having applied the same reasoning to a large vessel lately built, by estimating her speed from the pressure of steam on her piston; the volume of water displaced by her form in a given time; and the rate of motion she must give that water in displacing it. Her real speed was rather greater than my estimate.

And again I have the further evidence of having tested my theory by estimating the resistance of the wind against a flat surface, and comparing the estimate with the various experiments that have been made to show what that resistance really is; and as we would naturally expect, I find that the estimated resistance lies between the extremes given by authors, being less than their greater, and greater than the least they have given. Whatever may be thought of the theory, it can hardly be supposed that I have erred by undervaluing the resistance a vessel must meet; for I always allow eight at least, and under some circumstances fully twenty-fold power to double the speed of a vessel, and not four-fold, as many erroneously suppose. The best propellers known for such vessels would be chain buckets, so applied that the centre of the chain would dip far down into the sea. Paddle-wheels would not do for such vessels, because they would be, part of the time, buried in the wave, and the next moment entirely out of the water, as the vessel plowed its straight and arrowy way, without scarcely at all rising and falling with the swell, as other vessels do.

We must now close. Perhaps at some future time we may explain the application of the theory to river boats—it requires a still more novel form for them. I. J. K.

In the published rule for shaping vessels, on page 83, there is an error: the number printed 9 should be 8. Also, in one of the articles the word "attraction" was printed instead of the words "a traction."

Mr. Layard's Discoveries.

At the ordinary meeting of the Royal Institute of Achitects, London, on Tuesday, 26th ult., Mr. Bellamy, vice president, in the chair, Mr. Sidney Smirke, fellow of the institute, read "Some remarks on the style of ornamentation prevalent in the Assyrian sculpture recently discovered, and on some peculiarites of Assyrian architecture disclosed by Mr. Layard's discoveries." Mr. Smirke exhibited some admirable casts of portions of the sculpture which he had taken from the remains now deposited in the British Museum, representing amulets, bracelets, hilts of swords, a singular kind of foliage belonging to a tree apparently object of worship, the hems and borders of costume, human figures, horses, &c. Considering the extreme antiquity of these remains, the only moderate hardness of the material, and the lowness of the relief, these sculptures must be considered as remarkably well preserved. Major Rawlinson, who had mastered to a great extent the knowledge handed down in the strange characters found in these remains, entertained the opinion that the earlier ruins dated twelve or thirteen centuries before the Christian era. The love of ornament common to eastern nations was remarkable in these specimens. Every figure had some carved representation of ornament; even the common solders had their weapons covered with rosettes, bulls' heads, other figures, and the trappings of horses were most richly decorated. As the finger ring amidst these minute decorations was nowhere to be found, it was presumed that that was an ornament unknown to the Assyrians. Without going into the question of the antiquity of finger rings, he might state that they were mentioned in Esther and Jeremiah; and Pausanias, who wrote 422 years before Christ, related that he saw on a painting on the walls of a temple, a figure of Phocas, which had a ring on the hand. There was, however, no such example known to exist at the present time in Greek schulpture. Very few illustrations of domestic furniture had been found; but there were chairs with feet imitating the feet of animals—an ornament usually adopted in Greek art, and continued downwards through the mediaval period. The ornamental drawings exhibited frequently a a spirit and artistic skill which would do no discredit to our best artists. They had a freedom of execution wholly unknown in Egyptian remains. The honeysuckle ornament, which appeared very commonly, was as perfectly classic in its execution as the numerous specimens which were to be found in Greek art. The most trifling and mean objects were profusely decorated, and the mass of drawings of this description was so immense, that they must have been the work of the ordinary artisans. He doubted whether there were five working sculptors in England, who could work on a piece of marble winged wolves and antelopes with such a freedom of execution, and boldness and accuracy of drawing. These figures had, in fact, a strong analogy to the works of the Greeks, and he believed that the banks of the Tigris and Euphrates were more entitled than the banks of the Nile and Egypt, to the honor of giving birth to Greek art. Mr. Smirke then proceeded to show, at some length, the connection of the Assyrian objects of worship, such as goats and bulls, with those of the Egyptians, and he drew an interesting comparison between a deity springing from a wheel, which is much represented in these Assyrian sculptures, and the wheels mentioned in the 8th chapter of Ezekiel. The total absence of columns was remarkable. Mr. Layard mentioned only one instance in which he had found them, and in that he presumed, from other circumstances, that they were of later date. In one of the casts now exhibited, there was a representation of a sort of tent roof, supported by three pillars, which were so slender as to lead to the presumption that they must have been of wood. At the top of these pillars were placed the horns of a goat, so arranged that they suggested the idea of Ionic capitals. The style of achitecture to which the first Jewish temple might be attributed, had long been a matter of controversy, but he was disposed to think that these magnificent ruins afforded a better clue than any we had hitherto possessed. Geographically and politically speaking, the kingdom of Israel had more connection with these people than with the Egyptains, and it was from the countries west of Judea that Solomon sought his "cunning workmen," who were employed in the building of the temple. In conclusion, he referred to the recent accounts from Nineveh, as being provokingly vague and meagre. There had been found, it would appear, a most miscellaneous collection of rich armour, antique vessels, costly apparel, and other treasures, put together in a manner perfectly perplexing. An ingeneous pupil of his, Mr Keitch, had, however, drawn his attention to a passage in Diodorus Siculus, which would perhaps help to explain so otherwise utterly unaccountable a circumstance.—Sardanapalus, as they all knew, when his danger was imminent, and the Median enemy in possession of this city, owing to a sudden irruption of the river breaking down 20 stadia of the walls, collected together all his valuables, his vestments, his armor, his gold and silver, and his treasures, and formed of them a grand funeral pile. On the top he placed his wives, his concubines, his servants, his eunichs, and himself, and applying the torch, the whole were burnt together. Diodorous relates that one of the eunuchs, not yet tired of life, or at least having an insurmountable objection to so fiery a mode of going out of it, made his escape, and gave information to a Babylonian priest that under the ruins of the king's palace might be found enormous treasures. The priest went straight to Arbaces, who in the midst of his triumph was distributing rewards to his satraps, and reminding the monarch that he had predicted the fall of Nineveh. said that in the midst of the battle he had vowed a vow to Belus that, if the Babylonians were victorious, he would convey the ruins of the royal palace to Babylon, and erect there a temple to that god, which should be at once a monument of the destruction of Nineveh, and serve as a landmark to those who navigated the river that ran through the great city. The Median king, who was described by Diodorus as possessing a noble and generous disposition, granted him all the ruins of the royal palace for this purpose. The priest then, with the help of the eunuch, removed the the greater part of the treasure, but the fraud was discovered and he was condemned to death. The operations of the priest, so far as the treasures were concerned, were surreptitious, and of course the investigation of the ruins could not have been so complete as if it had been conducted openly and deliberately, and that would seem to account for the incongruous heap of valuables discovered by Mr. Layard. Thus, if the eunuch had not had so natural a distaste to be one of the principals in the *auto-da-fe* of the monarch, Mr. Layard would have been by this time in possession of the treasures of Sardanapalus.

The Dead Sea.

Twenty-two days' close examination was expended upon the sea and its shores, i. e. from April 19th to May 10th. We can only advert to a few of the interesting facts. The sea and shores were accurately examined in all directions. The distance in a straight line from the fountain 'Ain el-Feshkhah directly across to eastern shore was nearly eight statute miles. The soundings gave 696 feet as greatest depth. Another line was run diagonally from the same point to the S. E. to a chasm, forming the outlet of the hot springs of Callirrhoe. The bottom of the sea was found to be a level plan, extending nearly to each shore, with an average depth of 1020 feet all across. The bottom was blue mud and and sand; and a number of rectangular crystals of salt were drawn up, some of them perfect cubes. In a line from the springs of Callirrhoe to 'Ain Turabah, at a depth of 1044 feet, the temperature of the water was 62.°; at the surface immediately above it, 76°.—From 'Ain Jidy directly across to the mouth of the Arnon, the distance was about nine statute miles, the greatest depth 1120 feet.—On the eastern side of Kashim, Usdum (Salt Mountain) one third of the distance from its north extremity, a pillar of solid salt was discovered, capped with carbonate of lime, cylindrical in front and pyramidal behind. The upper or rounded part is about forty feet high, resting on a kind of pedestal, from forty to sixty feet above the level of the sea. It crumbles at the top and is one entire mass of crystallization. On the sea the tendency to drowsiness was nearly irresistible. The sensation amounting almost to stupor, was greatest in th heat of the day, but did not disappear at night. A horse and a donkey, swimming in the sea, turned a little on one side, but did not lose their ballance. A muscular man floated nearly breast high, without the least exertion.—The Arnon (el-Mojeb) where it flows into the sea, was eighty-two feet wide, and four feet deep. It runs through a chasm ninety-seven feet wide, formed by high, perpendicular cliffs of red brown and yellow sand-stone, mixed red and yellow on the southern sides, and on the north a soft rich red. The chasm runs up in a direct line 150 yards, then curves gracefully to the S. E.. A little north of the entrance of the Arnon, on a beautiful little stream, were twenty-nine date palm trees. Wherever there was a rivulet, lines of green cane, tamarisk and an occasional date-palm marked its course.—Zurka Main forms the outlet of the hot springs of Callirrhoe. The stream, twelve feet wide and ten inches deep, rushes with great velocity into the sea. Temperature of the air 77°, of the stream 94°. The chasm is 122 feet wide at the mouth and for a mile up. The sides are eighty feet high. Among the plants found on the werstern shore, between 'Ain el-Feshkhah and 'Ain Jidy, were the lily, the yellow henbane, the lamb's quarter, (used in the manufacture of barilla,) a species of kale, a single pistachia tree, and many tamarisks in blossom. In sailing round the southern part of the sea, many fatigues were encountered.—On one occasion, at 8 P. M., the thermometer was more like the blast of a furnace, than living air.—[Lynch's Expedition.

Home Truths.

Dr. Bethune, at the anniversary of the "Female Prison Discipline Society" held in this city, said: "When he looked upon the poor, and witnessed the hardships and privations to which they were subject, his only wonder was, that there was not more crime.—The respectable man, surrounded by his luxuries and his comforts, had no inducement to commit crime," &c. All who study human nature and observe the incidents of life concur in this opinion, that the basis of popular virtue is physical comfort, and that the more prosperity a people enjoy the less prone are they to vicious indulgence and criminal excess.—Hence the origin of societies to make some provision for emancipated felons, when thrown back into life from the solitude of their cells, to prevent want from driving them to a repetition of crime. Even the work of the religious missionary proves an abortion, unless preceded by some measures to secure the physical comfort of the convert. In crowded cities, a visit to the haunts of vice is but a visit to the last refuge of poverty, and whether vice has led to poverty, or poverty has been the mother of vice, one thing is indisputable, that neither can be cured without the preliminary of physical comfort. Of the thousands whose hearts throb with no passion but the enviable ambition to do good, none will shrink from the performance of this "home" duty, who reflect that it will bring a harvest of blessings, order, quiet and social security, under their own eyes, among their neighbors, who have a claim to kindness; and their own coutrymen, who can expect no missions from abroad, to bring them light, succor, or comfort. How the poor are made—who makes them—or what made them, is it not a question with the true christian philanthropist who aims to produce practical reforms from a vicious course of life, or to restore the reign of law and order to riotous cities desolated by mob outrages. The first element of a prosperous city is health—this implies cleanliness, which implies industry, physical comfort and a busy population. There is work enough in these objects, and of sufficient moment, for the exercise of all the philanthropy that ever undertook to benefit society.

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New Inventions.

Improved Blasting Wedge Tube.

Mr. Thos. S. Speakman, of Philadelphia, has invented a good improvement for blasting rock by forming his powder tube so as to retain the greatest amount of powder at the bottom, tapering towards the top, to split the rock laterally, instead of allowing the greatest force, as in the old way, to be exerted vertically.

New Steering Apparatus.

Capt. C. F. Brown, of Warren, Rhode Island, has invented a new and ingenious improvement in steering apparatus for vessels, for which he has taken measures to secure a patent, and which will, no doubt, arrest the attention of nautical men. The head of the rudder post is made of metal, with a helical groove running down on each side of it and over this is placed a tube with two feathers on its inside, fitting into the said helical grooves. Over the top of this is another outside tube or cap, bolted by a flange to the deck, and on its top is the wheel, having for its axis a screw, which works into a thread opening in the second tube, and as the wheel is turned this second tube is raised or lowered, and its feathers, thereby working in the helical grooves of the head of the rudder post, turns it roundward and from one side to the other, thus operating the rudder and steering the vessel. The steering wheel is horizontal, and there is an indicating pointer on the post head, which, as it turns, points to an index and enables the steersman to see every degree through which the rudder moves. Of all the steering apparatus that we have ever seen, this is the most compact and beautiful.

An Improved Machine for Planing Iron.

A planing machine of the largest class is now in full operation in this city that is worthy of some notice. It is made principally of cast iron, and weighs about 14 tons, the length being twenty six feet, height three feet and ten inches, and four feet in width. The sliding or planing part rests on a cast iron bed, 33 feet long, and forward like the bridge upon which the log is moved in an ordinary saw mill; a short distance forward of the centre is an upright iron frame, with a cross head which rises from its lowest point 4 feet, and will admit a piece of iron of that height to pass through, and be cut by the plane or chisel. The iron planed by it is intended for the parts of steam and other engines which are required to be cut in a variety of angles, to affect which rules and guages are affixed to the cross head, with the angles and circles accurately marked, and these are made to communicate and to regulate the plane or chisel below. The whole cost is about $2,500.—[Newark (N. J.) Adv.

We do not know that we have ever seen or heard of any machine of this construction being in operation before, except one belonging to Mr. Frost which used to run in Brooklyn The above description would answer in every respect for the one we allude to.

Something New.

A Yankee, in Boston, has advertised a new and important invention whereby pantaloons are moulded into the desired shape by a machine composed of heated plates and dies, which, under a high presure of steam applied to the handle of the shears, produces the exact form required. In addition to the perfect symmetry in all cases secured, the form is more permanant than that produced by the old process.

[The above is from an exchange and we do not vouch for its authenticity, although we must say its possibility is not questionable.

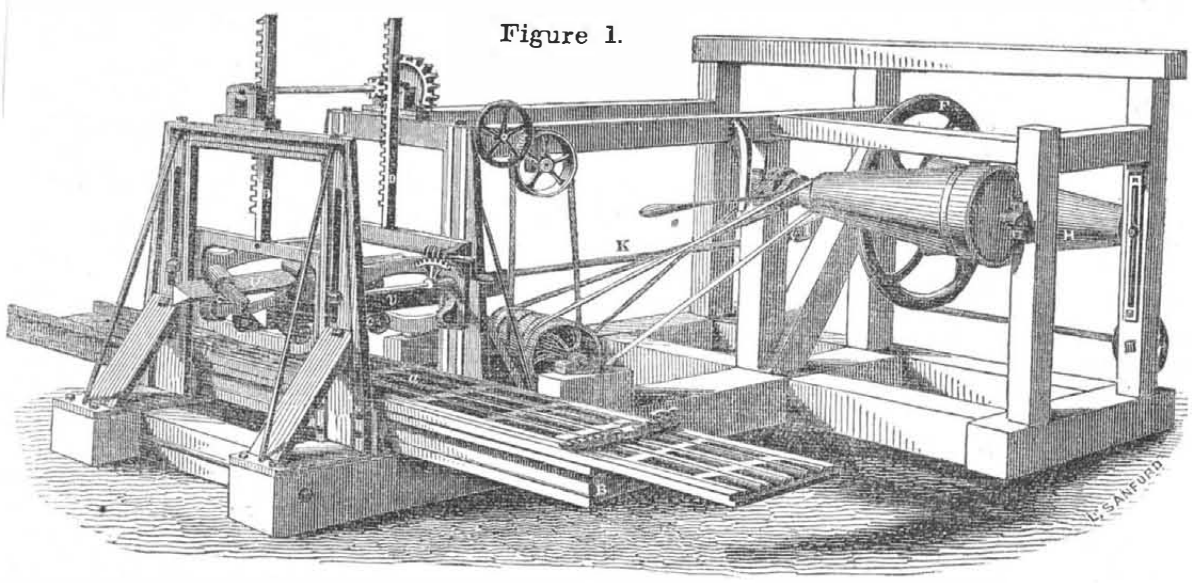
The steamship Pacific went to sea on her trial trip on Monday and returned on Tuesday, She gave abundant satisfaction of her qualities.

WILSON'S PATENT STONE DRESSING MACHINE.

This machine is the invention of Mr. Charles Wilson, of Springfield, Mass., and is patented by him, and is justly allowed to be the only machine ever constructed which embraces the true principle of operation, for dressing stones. The principle of the invention consists in having a number of circular or disc cutters fixed on an axis which are made to roll over the surface of the stone as it is carried by a carriage transversely to the path of the cutter's motion, making a beautiful surface on the stone, and not injuring in the least its crystaline character.

Figure 1 is perspective view of the machinery; *a* is the false or movable bed on which the stone to be dressed is placed. It is made of cast iron, and the stone is fastened to it by suitable fastenings holding it on the sides and ends, the face to be dressed lying upwards.—Of those false beds there are two, in order that while the stone upon one of them is being dressed, the workmen can be fastening and leveling upon the other. They are fastened upon the permanent bed, B, by inserting a simple bolt at each end. They can be carried from the permanent bed to the place where it is convenient to receive the stone, either by a crane and pulley or by a railway, in which last case they are to be furnished with small wheels at each end, contrived so as to allow the movable bed to rest wholly on the permanent bed. The permanent bed carries the false bed with

Figure 1.

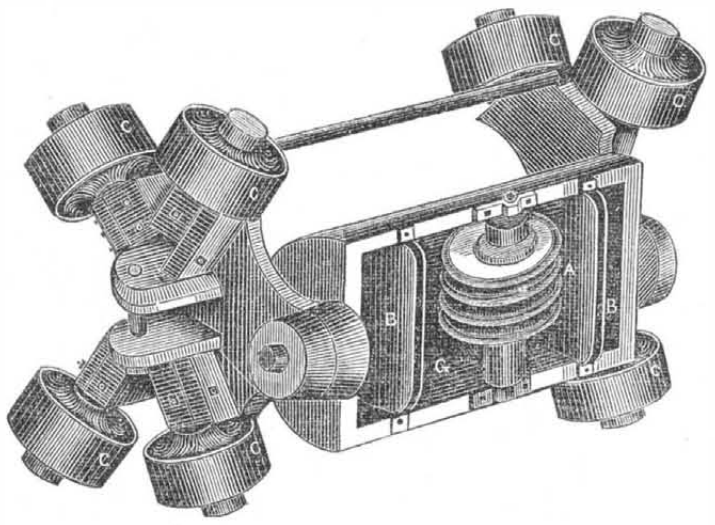


the stone on it under the action of the circular cutters, at such rate as their operation will allow, usually at the rate of about one foot per minute. The movement being effected by a cogged strip, on the under side of which a cogged wheel works. F is a fly wheel fastened to the drum. H is a flange from the axle of the fly wheel to which is attached the reciprocating rod, K. This rod or arm is attached at one end to a flange, and at the other to the cutter head by the revolution of the fly wheel made to drive the cutter head back and forth across the surface of the stone, as the latter is moved along underneath the cutters and subjected to their action. The length of the stroke of the arm and cutter head driven by it, is regulated by shifting the point of the arm and flange by means of slots or holes in the arm. The feed or process of moving the stone to the action of cutters is regulated at pleasure in the ordinary way.

The angle at which the cutters are brought to bear on the face of the stone is about forty-five degrees—but the angle may be varied as the material to be dressed requires, being adjustable by a proper apparatus, and the same apparatus reverses the aspect of the cutters to meet the stone when coming from either direction.

The machinery for driving the cutters by the reciprocating arm, K, being well known, need not be further described, but as the cutters move in a carriage, the frame which guides them is peculiar. It is made of strong well braced parts to support the frame of the carriage, which has triangular side bearings, *v v*, which guide the rollers of the cutter carriage and support them. These side bearings, *v v*, are secured to a frame which has cross heads with racks, D D, fixed in them, which mesh into a pinion above, by which the carriage bed, *v v*, is elevated by its frame being raised in

Figure 2.



slots in the posts. The cutters have to be elevated and depressed for stones of different thickness and for going over a stone twice or oftener, to make the surface perfectly level. The cutters can thereby be set, to cut a small or large chip, for different kinds of stone. This is an important arrangement, *c c*, are the rollers of the cutter carriage, and will show the arrangement of them as they are drawn backwards and forwards by the arm, K, to dress the face of the stone as it is carried transversely on its railway bed below.

Figure 2 is a perspective view of the cutters in the carriage. This view exhibits them on a larger scale than figure 1. A are the disc cutters; (each cutter is formed on both sides, like the outside of a quoit;) they are made of wrought steel, are nine inches in diameter, one-fourth of an inch thick, tapering to a blunt edge. There are four of them set on a hollow iron cylinder, alternately with washers, and this cylinder revolves on a fixed journal set into bearings in the metal box, G. (The engraving shows this box and carriage turned upon the one side.) This box is fixed in bearings at the ends, so that it can swing around, to change the cutting angle of the cutters, A. When the carriage carries the stone under the cutters, and the whole surface has been gone over once, the angle of the cutters is reversed, and when the stone traverses back, the cutters operate a second time to give a most complete dressing to the stone. The arrangement for changing the angle of the cutters, is a screw rod extending along over the top of the box making a flange hug the cutter box on the crown of its arch, and can be slackened and tightened at pleasure. The cutters are set to cut, from an angle of 25° to one of 45°.

C C are the rollers, which guide the carriage; they hug the V rail bed (fig. 1) one wheel of a pair being above and the other below, and thus allows the cutters to pass backwards and forwards to act upon the stone in a very excellent manner. B B are double sheets of strong leather to follow the action of the cutters and sweep away the chips.—A broom may also be used. The cutters are propelled like the wheel of a carriage upon a road.—The whole frame of this cutter carriage, is made of iron well put together bolts, &c. When the cutters are blunted they are easily ground down to an edge and it has been found that the wear of these cutters is very little. It will therefore be understood that when these cutters are in operation tion, this carriage is secured in the frame, fig. 1, to move the cutters backwards and forwards on the face of the stone, by the reciprocating motion of the arm, K, (fig. 1.)

This principle of action of the cutters is most effectual in dressing stone of the softest and hardest qualities. We have seen two of these machines in operation at the Empire Stone Works, Messrs. Sherman & Howdayer, at the foot of 28th street, East River. Marble, the hardest Staten Island granite, and even the now celebrated Georgia Burr Stone, have been dressed by one of the machines mentioned, in a period of time surprising to every body who witnessed the operation, and with but little wear of the cutters. The cutters work over the face of the stone at the rate of about one square foot per minute and cutting to the depth of about 1½ inches. We have seen a stone cutting machine with chisels set on a Bramah disc wheel, but it was no machine at all to compare with this one. The face which is put on the stone is beautiful, and in comparison with hand labor—well, in point of economy, there is no comparison.

More information may be obtained by letters (*p. p.*) addressed to the proprietors in this city, Messrs. Shelton & Flagg, No. 12 Wall street.

Circular Saws.

The Middlebury Galaxy states, that Jeremiah Hall of that town first invented, and put into successful operation, the circular saw, and his widow has in her possession the first circular saw ever used in this country. Had Mr. Hall claimed and secured his legal right, it would have placed him in independent circumstances. He never took out a patent, consequently he never received the first dollar's remuneration for his useful invention. "He died in extmere poverty in 1842, but has left a rich legacy to posterity. His name ought to be rescued from oblivion, and enrolled with those whose ingenuity and extraordinary invention entitle them to the lasting gratitude of mankind."

[We suppose that the above may be correct, so far as the inventor was aware, but circular saws were employed for cutting the teeth of watch and clock wheels by Dr. Hook, the famous mathematician and mechanic, who died in 1702.

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Scientific American

NEW YORK, MAY 25, 1850.

Knowledge, Inventors and Invention.

It has been frequently asserted, that "the greatest inventions have been produced by illiterate men." This is a mistake. In almost every instance, great and good inventions and discoveries have been made by men of education. It is no doubt true that the great majority of them were made by men who had not the benefit, (if a benefit it can be called in all cases) of a collegiate education, but this is no sign, although a common opinion, that they were not highly educated. Every great inventor that we have heard of, or read about, was a man of deep reflection, and devoted to the reading of good authors. With such traits of character, who shall say that "they were not men of education." Knowledge or education, does not consist in a mere acquaintance with the abstract sciences and the dead languages, but it circumscribes the whole domain of truth, whether arrayed in the most common operations of the arts, or decked in the garb of the cloister or cabinet. To assume that inventors have been generally men of little education, is to pay a high compliment to ignorance and is not very complimentary to inventors. Whitney, Cartwright and Watt were highly educated men in every sense of the word, and although Fulton, Arkwright, Telford, and a host of other great inventors, were but common mechanics in the early part of their lives, yet had they not possessed remarkable intelligence, with remarkable concentration of mind, they never would have been distinguished above their fellows. Knowledge strengthens and expands the mental powers, giving them a more powerful and grasping tone, but the grand object is to direct them aright, that they may not expend their strength on "trifles light as air." Let no man suppose that he can get along without information as well as with it—especially in devising new improvements in the arts. Without education an inventor, with a powerful and concentrated mind, may work out a useful and profitable invention. Such a man was Richard Arkwright, but if we look at the men of the present day, whose names stand out on the page of invention, we behold a Morse and a Stevenson, as highly qualified by education as their names are honored by their inventions. The majority of inventors with whom we have become acquainted, are all distinguished for a great amount of knowledge. The man who reads and reflects can generally devise and plan.

There is a common feeling among most all tradesmen about new inventions, which we want to say a few words about. It is "the spirit of despising things at first, which are produced by men out of their line of business." Men who invent something out of their line of business are generally laughed at by those in the business. Why? Because, they say, "how can they know any thing about a business which they have not learned as a trade." This is not a right spirit. It is true that many men invent things which they think are new, but which have long been known to tradesmen in the business, but for all this, every *work* should be tried upon its own merits, be it the invention of Jew or Gentile. Whitney, Arkwright and Cartwright were neither engineers nor machinists, yet their inventions revolutionized the whole cotton manufacture.

We have often had cause of regret to see what a mass of thought and intelligence was expended by those who are termed the "most highly educated," upon subjects which have no practical bearing on the welfare of man or the advancement of the useful arts. What good will ever result from huge volumes written to prove the unity of the human race, or from long-winded desertations on the subject of the age of Mother Earth? No good at all; and it must be admitted because it cannot be denied, that such subjects and those of a kindred nature, receive more attention in the College Hall than others of a vastly more useful character. This is the reason why such men from the workshop as Watt and Fulton, Bell and Stevenson have turned the world upside down by their inventions, while the sages of Oxford and Cambridge have but added some new theorems to the Principia.

A Vegetable Diet.

On Wednesday of last week a Convention of Vegetarians was held at Clinton Hall, in this city, and quite a number of Delegates were presented. A Mr. Jonathan Wright declared that he had been a vegetarian forty years, and had reared a family of eight children on vegetables. He believed that humanity might save itself much labor and excitement if they would eschew flesh meat.

The Convention formed a Vegetarian Association, the objects of which are to induce habits of abstinence from the flesh of animals, and for the dissemination of information on the subject. One resolution that was adopted will show their zeal:—

"Resolved, That if man would return to Paradise and purity,—to mental and physical enjoyment, he must return to a Paradisical diet, and abstain from eating and killing animals as food."

Another resolution adopted will show their excessive modesty, and the complete fulfilment of that old saying, "it's a grand thing to have a good conceit of ourselves."

"Resolved, That as there are intellectual facts and a mental being into which an inebriate can never enter, and delights which he can never enjoy, so there are moral facts and a moral being which, to the flesh-eater, can never be revealed, and a moral happiness in which he cannot fully participate."

Vegetarians must be a moral set of mortals in their own estimation. As they have come to the conclusion that a vegetable diet will make our earth a Paradise again, we have no doubt but some of them will yet try to prove that the forbidden fruit was nothing less than a beef-steak or mutton-chop. Dr. Graham was there, and had a set-to with Dr. Wieting, a beef-eater, who was more than a match for him, and certainly gave evidence, although a vegetarian, that his vegetable diet had not imparted to him a paradisical disposition.

There is one thing which we abominate from the very bottom of our heart, and that is, a disposition to make all scripture square with conceived opinions, instead of endeavoring to square opinions to scripture. There is not a new society organized for the ostensible purpose of any reform, without bringing scripture to bear upon their peculiar opinions to prove all the world in error but themselves. It is fearful to hear scripture handled as it is sometimes, by audacious enthusiasts. And upon the point of a vegetable diet being countenanced by scripture, to the exclusion of animal food, it is a heresy for which a great many vegetarians are responsible. If men hold opinions that are opposed to those of the scriptures (we only speak now of physical facts) let them be honest and say so. We like an honest though misguided man in preference to a hypocrite.

In looking over an address by the great Graham, delivered before the Agricultural Society of Hampshire, Mass., and published in the Tribune, we were struck with fear at the daring mutilations of Holy Writ in it. He asserts that before the flood, "as men multiplied upon the earth, they increased in sensuality and depravity, creating disease, and shortening life by eating flesh and drinking wine, and rioting in sensual pleasure, till God in mercy sent a flood to cleanse the earth from human pollutions." It is a great untruth to say that there is any evidence of flesh being eaten or wine having been drunk before the flood. It was not till after the flood that Noah received a command to eat flesh; so we have direct proof that the earth was filled with most horrible violence during the vegetarian age of the world—it was the most wicked age of the world's history.

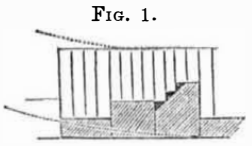
We believe that vegetable and flesh diets are suitable for man, according to his wants, his kind of occupation, and the climate in which he lives, and the scriptures leave us to be guided by common sense and observation in reference to these things. A vegetable diet is best at the tropics, a mixed diet in the temperate climes, and nearly an entire animal diet in the arctic and antartic regions. The grand thing to observe in respect to diet, is cleanliness, regularity and moderation in partaking of it, and exercise and cheerfulness to enjoy it.

Walls of Buildings.

Concluded from page 277.)

Although we have stated that it was best to use the mortar as soon as possible after it was mixed, yet this is only in case it should be exposed, for it is well known that if mortar is kept covered up from the atmosphere in a heap, it is all the better for it. The Romans used to keep their mortar in this way for a year before they used it, and then they pounded it with beetles and made it into a proper thickness for use. Things are done in too great a hurry now to follow after such a good old plan. Neither clay nor sea sand (unless the latter is well washed) should be used along with mortar, as they prevent it from hardening.

Fig. 1.



Along with bad mortar and slender walls there is another evil of perhaps the greatest magnitude of all, viz., the manner of bonding them. As there are quite a number of walls made of brickwork faced with stone ashlar, it is requisite that this should be well done to prevent settling, which is an evil to which walls are liable when composed of different kinds of materials.

Fig. 1 shows a wall with a facing and backing of different courses, such as a brick walll with stone faces, and it exhibits how the wal is liable to settle on the inside as shown by the dotted lines, owing to the greater number of mortar joints in the inside than the outside. The best way to prevent this is to set the backing in cement, or some hard and quick setting mortar. In facing brick work with stone, the stones should be all truly squared and worked to sizes that will bond with the brick work. If this be neglected there will be numerous vacuities in the wall as exhibited in fig. 1. [Bond, in Masonry, consists in the placing of the stones, or bricks in such relative positions that no joint in any course shall be in the same plane with any other joint in the course above or below it. This is called breaking the joint.] There used to be only two kinds of bonds made use of by bricklayers, called *English* and *Flemish* bond. Fig. 2 is the English, and fig. 3 the Flemish bond. In the English there is one row lengthwise, called *stretchers*, and the second row is placed in a contrary direction and called *headers*. In the Flemish bond, the headers and stretchers are alternate in the same course. This is a very neat and excellent bond, and all the old brick houses in New York used to be built in this manner. It is not so strong as the English bond, but infinitely better than the plan at present employed for facing, which has no bonds at all, but is made up of stretchers from top to bottom, like fig. 4. The appearance of this wall is by far the neatest, but strength is sacrificed to appearances. It is a common custom, also, to build the interior walls with five rows of stretchers and one of headers, thereby paying a reckless regard to good bonds and giving bad mortgages for the security of their strength.

Fig. 2.

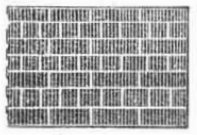


Fig. 3.

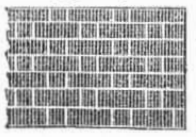
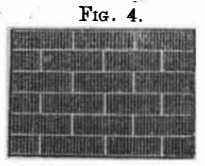


Fig. 4.



In building walls which have to sustain a vertical pressure, four things should never be lost sight of, viz., uniformity of construction throughout the whole thickness; the proper bonding of the courses; the right distribution of the load, and good mortar. In all walls there is some settlement, but the danger does not lie in the amount but in the irregularity. This is the cause of fractures, and all their attendant evils. We have seen in too many walls the ends of joists and other timbers built into the walls. This is liable to lead to irregular settling from the shrinking of the timber, and in all cases, it is recommended to guard against this evil by leaving proper recesses for the ends of the timbers, and the strength of the mason work should be entirely independent of them. It used to be more customary than it now is to employ a great number of cross iron ties in brick walls. This, we suppose, would be considered too expensive to be employed generally and extensively now, but we recommend this good old way and taking care to tar the ties to prevent the iron from oxidizing.

All masons know the evils of poor walls, and those of experience know how to build good walls. The object of these remarks is to draw the attention of others who are interested in the same, to the subject, in order that they may be able to judge between good and evil in the matter, and devote some attention, intelligently, to prevent evils which have become a common disgrace to our city. Masons would rather erect good than poor walls, but it is an old and a trite saying, "the tailor must cut according to his cloth."

The City of Glasgow Steam Propeller.

This fine ship, which we have already briefly noticed, sailed from this port to Glasgow on last Saturday, on her first return voyage. As this vessel is the pioneer of a new line, opening up a regular steam communication with a new country, it is worthy of more than a mere passing notice. She is an iron ship, and the finest model of one that ever entered New York Harbor. She is propelled by a four fluke Woodcroft screw, of 13 feet diameter. She has two engines of the combined power of 350 horse. They are the most compact marine engines that we have yet seen. The beams are overhead above the hot wells, and geared to a shaft with a large cog wheel, with wooden teeth, which gears into a pinion on the propeller shaft, making two revolutions for one of the first shaft. The engines are both on one side, balanced by a large coal bunker on the other. The engines are well built, though not so ornamental as either of the Liverpool steamers. She has three boilers, and carries 6 lbs. of steam only. This vessel is bark rigged and carries a great deal of canvass. Her tonnage is 1600 tons. She is fitted to carry 1200 tons cargo, and 80 cabin passengers. Her accommodations for passengers are of a very superior character, especially for comfort. The builders and owners of this iron ship, from stem to stern, are Messrs. Todd & McGregor, engineers, Glasgow, who unite in themselves the qualities of practical and scientific engineers. Both of them before commencing business for themselves were in the employ of Napier & Co., the one as foreman for a number of years, and the other as first steamboat engineer,—they are therefore self-made men, and now conducting a very extensive business, being considered the best builders of iron steamships in Great Britain, and have now contracts on hand for some years ahead.

The appearance of this vessel, as she left the wharf on Saturday, was very graceful, as she is so full rigged and has such a clear water run. Thousands of Scotchmen were assembled to witness her departure and gave "shouts repeated," as she was departing on her voyage home to "Bonny Scotland."

Capt. Matthews, formerly of the Great Western, is her commander—he is a very able and successful Captain.

Great Reduction in Telegraph Tolls.

Notice is given that, on the Morse line of telegraph, the rates of tolls between Boston and New York, and between Boston and Portland, will be twenty cents instead of fifty on the first ten words or less of each communication. To New York, two cents for each additional word; to Portland, one cent each added word.

M. Jules Alex., of Paris, has presented a petition to the French Assembly, stating that he has discovered a new method of education whereby a child may be taught to read in fifteen lessons. He asks for an appropriation of 50,000 francs.

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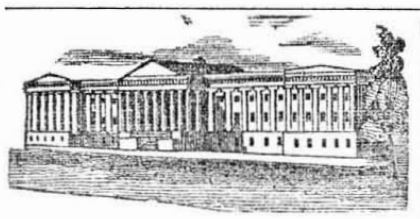

☞ Our weekly List of Patents and Designs contains every new Patent, Re-issue and Design emanating from the Department, and is prepared officially, expressly for the Scientific American, and for no other paper in the city, consequently other journals are obliged to wait the issue of the "Sci. Am." in order to profit by the expense to which we are subject, and of course must be one week behind. Those publishers who copy from this department in our columns, will, in justice to us, give proper credit for the same.

LIST OF PATENT CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 14, 1850.

To O. P. Allen, of Ringe, N. H., for improvement in machines for slitting clothes-pins.

I claim cutting the sides of the outer end of the slot or fork of a clothes-pin on a regular sweep, by means of knives formed alternately on each side of the circular saw which cuts the straight part of said slot, and in the direction explained, whether said knives be made of portions of the plate of said saw, and bent outwards as described, or in separate pieces, and attached to said sides of said saw.

To A. Atwood, of Troy, N. Y., for improvement in Stoves.

I claim the air chamber in which the air is heated previously to its admission to the fuel, in combination with the spiral apertures by which the heated air is caused to impinge on the upper surface of the fuel, substantially as described and for the purpose specified.

To L. Bissell of New York, N. Y., for improvement in connecting rods of steam engines and other machinery.

I claim the application of prepared india rubber, or of any similarly effective substance, in the parts forming the joints of connecting rods of steam engines and other machinery for the purposes of preventing jars and breakage of the parts, when a reciprocating motion is changed to a rotary, substantially in the manner described.

To B. F. Broomell, of London Grove, Pa., (Assignor to I. Jackson), for improvement in steaming grain preparatory to grinding.

I claim, in combination with a steam pipe and grain passage the deflecting partition for directing the steam upward and the grain downward, whereby the current of grain is steamed by direct contact with the current of steam at the moment before entering the mill, substantially as herein described.

To. H. C. Brown, of Xenia, Ohio, for improvement in balancing sash.

I claim, in connection, the grooves in the sash, the distribution of the several pulleys and friction wheels, and the cord attached to the bottoms of the sashes instead of their tops, whereby the cord and pulleys are kept entirely out of view.

Second, The combination of the barrel axle, ratchet wheel and pin, with its case or bearings, or their equivalents, with the cord and pulleys, the whole arranged and operating in the manner and for the purpose herein described.

To D. H. Chamberlain, of Boston, Mass , for toothed segment lock for firearms.

I claim the movable toothed segment and escapement or spring pawl, or any mechanical equivalent therefor, (the said segment and escapement being arranged within the trigger,) and the toothed segment or arc of the hammer in combination together, and with the trigger, hammer and stock, and made to operate substantially in the manner and for the purpose above set forth.

To T. M. Collins, of Marion, Ark., for cylinder and trough gold washers.

I claim the separating gold or other heavy substances from others of less specific gravity and water with which it may be mingled by the use of a wheel or cylinder and trough, the periphery of the former and the bottom of the latter being covered and constructed substantially as herein set forth.

To N. Colver, of Boston, (Assignor to N. Colver of Boston, Mass., & W. S. Damrell, of Dedham, Mass.,) for Revolving Jaw Wrench.

I claim the revolving jaw block and feather, as combined together, and with the screw shank, and made to operate, substantially as herein specified.

To A. Combs, of Farmington, O., for improvement in connecting the skeins with axles.

I claim the combination with the skein of the screws, for the purpose of tightening the skein on the axle tree, as set forth.

To J. C. Dodge, of Dodgeville, Mass., for improvement in preventing fibres from winding on drawing rollers in spinning machines.

I claim the improved manner of applying and using the roller, the same consisting in placing it not exactly in contact with the lower front drawing roller, but at a distance therefrom, and by means of separate or additional machinery, giving to it a rotary motion at the same velocity and in the same direction with these of the said lower front drawing roller, the whole being in the manner and for the purpose set forth.

To J. Houghton, of Ogden, N. Y., for improvement in machines for washing table furniture.

I claim the construction of a cylinder with a cylindrical rack supported by an upright shaft resting upon and being within and supported by the cylinder, the rack having within it a conical rack and hoop to receive and hold table furniture, in combination with a curb containing a horizontal wheel with buckets to throw water upon the cylindrical rack; the whole supported by a frame, and by these mechanical means cleansing the surface of table furniture without the use of hands, the entire machine being arranged, combined, and operated substantially as herein fully set forth.

To J. L. Mott, of New York, N. Y., for improvement in Cooking Stoves.

First, I claim making the cover of the feeder projecting in front with curved sliding doors, substantially as described.

Second, I claim forming the bottom grate by casting projections from the edge of the fire back, or the equivalent thereof, substantially as described.

Third, I claim giving the required strength to the fire brick lining of stoves to prevent them from breaking or separating when cracked by the heat, by the insertion into them of metal rods, wires, or wire cloth, substantially as described.

Fourth, I claim the combination of the two series of flue tubes arranged one above the other and with a space between them all for the circulation and radiation of heat; for the purpose of giving a greater heat at the bottom of the oven, substantially as described; and this I also claim in combination with the above arrangement of flues, as described.

And lastly I claim the method of supporting and bracing the door or doors by means of the bracing rod hinged to the door and passing through a hole below (or the equivalent thereof) and being against the bottom of the stove, or a stop, or the equivalent thereof, substantially as described.

To H. Patterson, of Templeton, Mass., for improvements in Splint machines.

I claim the combination of the circular or tubular cutters, their laterial wing knives or cutters, their rib knives or cutters, and the waste escape passage for the waste strips, substantially in the manner and for the purpose set forth.

I also claim the improvement by which I am enabled not only to make round or cylindrical splints, but to introduce them to the dipping frames, that is I do not claim the combination of cutters dipping frames and passage leading from the cutters to the dipping frames, as these have been before invented and used for making square splints and setting them in the frames, but I claim, in combination with cutters for forming the round splints and passages, for receiving them and conducting them to the dipping frames, the passages, for the escape of the waste wood or strips, they being applied together and made to operate in connection with the reducing plane iron, and the plates, substantially in the manner and for the purpose herein described.

To A. S. Pelton, of Clinton, Conn., for improvement in threshing machines.

I claim the pecular serrated and duplex conformation of the beaters, substantially in the manner and for the objects herein described, that is to say, consisting of a pair of plates, diverging rectangulary from each other, and the latter consisting of teeth chamfered off from their inner side at their points as represented.

To O. L. Reynolds, of Dover, N. H., for improvements in sewing machines.

What I claim is, 1st, the adaptation of the bearded needle, such as is used in knitting or stocking frames, in combination with the manner of closing the beard or hook thereof, previous to drawing it back with the thread, to prevent the point tearing the cloth, by passing through the hole, in the plate, in the manner substantially as herein described.

Secondly, the combination of the spring thread leader or guide, the arched spring, and friction roller, for the purpose of leading the thread under the point of the beard of the needle.

[An engraving of this invention will appear in the Scientific American, in a few weeks.]

To W. Scarlett. of Newark, N. J., for improvement in Suspender Buckles.

I claim the constructing a buckle by combining a curved plate, with an angular lever, substantially in the manner herein set forth.

To J. Trees, of Salem, Pa., for Shell Propeller.

I claim giving the shell of a submerged propeller the form of a section cut from the open extremity of sea shell of the class of which that represented in the drawing may be considered a type, the mouth of the helical tube at which the water enters being of greater area than its hinder extremity at which the water is discharged.

To J. N. Warren, of Buffalo, N. Y., for improvement in the joints of stove-pipes.

I claim the stove pipe herein described as a new article of manufacture.

DESIGNS.

To J. Hutchison. of Troy, N. Y., (Assignor to Deborah Powers, A. E. & N. B. Powers, of Lansingburg N. Y., for design for painted floor cloth.

To W. Race, of Seneca Falls N. Y., for design for stoves.

More About the World's Industrial Convention.

The following points of principle have been decided by Her Majesty's Commissioners, in answer to inquiries made by the Local Committee for the city of London:

"1. Juries will be selected to award prizes; but no competitor for a prize in any section will be allowed to act upon a jury to award the prizes in that section.

2. It is not intended to require of exhibitors that they should of necessity be subscribers.

3. It is not intended to exclude any person, whether he be the manufacturer, designer, inventor, or proprietor of any ariticle, from exhibiting it, whatever may be the regulations under which he may hereafter be required to do so.

4. Some misunderstanding having arisen from the use of the words, 'counting houses' in the building prospectus issued by the commissioners, they intend only to have such officers as will be required for taking money at the doors, distributing tickets, selling catalogues, and conducting the other business of exhibition, and not offices for the sale of articles intended to be exhibited, and not the transaction of commercial business; and the commissioners can therefore give no facilities for the sale of articles, or for the transaction of business connected therewith.

(Signed,) J. S. Russel.
Strafford N. Northcote.

The Tea Culture in South Carolina.

Dr. Junius Smith, of Greenville, South Carolina, in a letter dated May 1st, speaks of his experiments in growing tea in this country as highly successful. The plant maintains its original physiology and follows its Chinese paternity, putting out its foliage at the same period that it does in China. All Dr. Smith's plants have taken root, the buds began to develope leaves about the 20th of April, though the spring has been backward, and he could then collect a sufficient quantity of leaves to make first rate tea. He says the leaves are most tender and delicate, and he can now understand why it is that we cannot obtain the first quality of tea from China. The first growth of the leaves is so delicate that it is quite impossible to divest it of humidity by firing or roasting to sustain so long a voyage, besides the almost certainty of utterly destoying its rich and precious aroma. When the tea is cultivated here, this process of roasting may be dispensed with. With variety of soil, abundance of cheap land and facilites of transportation, Dr. S. thinks that if we do not cultivate our own tea, we ought to be tributary to those who call us barbarians.

What is Dirt?

Old Doctor Cooper, of South Carolina, used to say to his students, "Don't be afraid of a little dirt, young gentleman. What is dirt?—Why nothing at all offensive, when chemically viewed. Rub a little alkali upon that 'dirty-grease spot', on your coat, and it undergoes a chemical change and becomes soap. Now rub it with a little water, and it disappears; it is neither grease, soap, water, nor dirt. 'That is not a very odorous pile of dirt,' you observe there. Well, scatter a little gypsum over it and it is no longer dirty. Everything you call dirt, is worthy your notice as students of chemistry. Analyze it! It will all separate into very clean elements.

"Dirt makes corn, corn makes bread and meat, and that makes a very sweet young lady that I saw one of yon kissing last night.—So after all you were kissing dirt—particulary if she whitens her skin with chalk or fuller's earth. There is no telling, young gentleman, what is dirt. Though I must say that rubbing such stuff upon the beautiful skin of a young lady is a dirty practice. 'Pearl powder', I think is made of bismuth—nothing but dirt."

Cotton Factories South and West.

It has been estimated that there are now in operation in Georgia 40 cotton mills, employing near 60,000 spindles, and consuming 45,000 bales of cotton annually. In this estimate, which seems to be below the true mark, no calculation is made of the paper mills, bucket factories, iron establishments, flouring mills, &c. In Tennessee, it has been reported to the Secretary of the Treasury that there are 30 factories, employing 36,000 spindles. In South Carolina, the Hon. William Gregg says there are 16 factories, containing 36,500 spindles and about 700 looms, consuming 15,000 bales of cotton per annum. He estimates the capital invested in these establishments at about one million of dollars, and the number of operatives they give employment to, at 1,600. Tere are in Alabama 12 factories, with a capital of $500,000, containing 12,580 spindles and 300 looms, and consuming about 5,500 bales of cotton annually. It is said that machinery for others is contracted for, sufficient to make the number of spindles 20,000, and the looms 550. In these four States there are 98 factories and 140,000 spindles. On the Ohio river it is estimated that there are factories which, taking them in the aggregate, run 100,000 spindles.

The Staw Hat Trade in Michigan.

Nearly every day we notice, says the Detroit Tribune, large quantities of straw hats shipping from this city, east and west. The trade has become quite an important one in our State. The Malcomb Gazette says, "we have made some enquiries as to the number of straw hats purchased in this village during the past winter, and found that the number would exceed twenty-five thousand, the estimated value of which is about twenty five cents each, making the aggregate value of the straw hats purchased $6,250." This is only one county, and there are many others that will show a like result.

Deflexion of Iron Girders.

From experiments made by Mr. Fairbairn, of Manchester, it appears that iron loses a great deal of its strength when heated above 220°, and its uncertainties are great below the freezing point. Mr. Clark, the engineer, has described the effect of the sun of the great Conway Tube, when shining for half an hour, to be so powerful as to lift the tube vertically one inch. It is the opinion of Brunel that iron girders should not be tested with a weight exceeding the greatest load it has to bear, as the object in testing is to ascertain the soundness of the casting, which may be judged of by its appearance under the load.

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TO CORRESPONDENTS.

"M. F., of Mo."—So far as we are able to judge the nature of your invention from the description, givewe should think the plan similar to Geo. Page's patent. We cannot, however, decide this point, without a well describeddrawing.

"J. P. W., of Mass."—We have no time to attend to the construction of such a model as you want, perhaps Mr. Griffith, author of the work upon shipbuilding, noticed in the Sci. Am., could give you all the necessary information.

"H. Grice, Port au Prince."—Your letter of the 9th ult., by ship, reached us safe; Capt. Cutts has not called at the date of this. By reference to the back numbers of this volume, you will find all the information we possess concerning Mr. P.'s discovery—he has not yet adapted it to stoves that we know of. Sorry that we cannot get the "Sci. Am." to you in regular order, but we have no chance of sending, except when a vessel sails.

"P. P., of N. Y."—The drawing of your cheese press has been carefully examined.—The devices are so common that no patent could be obtained for it. The ratchet wheel lever and weights for the purpose of continuing the pressure could not be claimed as any thing new.

Some one from Ervinville, Geo., writes us to send him an article, and claims to be a very honest man, of which we should not doubt if he had given us his name; at present the matter is quite obscure.

"W. O. O., of Ala."—Your letter of the 9th inst., came safe, the matter was all correct, except a mistake in entering Mr. M.'s name. $15 received.

"C. J. P., of Geo."—You are mistaken in your views, no such theory can ever prove valuable in practice. Experiments made many years since fully sustains this view of the matter.

"M. J. B., of Va."—We have lost your excellent table of the "Board Measure of Logs." We were going to set it up in type, when it went amissing. We should be happy to get another, for it is a very useful table indeed.

"C. S. & M., of Pa."—The specification, drawings and assignment of your invention was forwarded to the Patent Office, with fees, last Friday, May 17th. It would be useless for you to forward certificates of its merits to the Patent Office, if Gen. Taylor should sign it himself. We have given them all the information they need about the invention, and as to the mercantile value of it, they care not; it is the novelty of an invention that is most studied at the Patent Office.

"J. R. H., of Ala."—The model of your invention has been received, and considering the tools you had to make it with, and what other disadvantages you labored under, we think your production good. The $50 of which you mention in your letter, has not come to hand yet.

"A. B., of N. Y."—You will find in this week's number a description of the best machine for dressing stone that has been patented in this country. $8 received, and an engraving of your invention will appear early.

"D H. J. & Co., of Phil."—On the 13th inst. we forwarded a specification to you of your improvements for execution, and it is for your interest to have them returned to us as early as possible. Delays in patent matters are sometimes dangerous.

"F. S. T., of Vt."—We know no reason why you cannot make a fortune by dealing in patent rights as well as any one. Many fortunes have been realized by purchasers as well as by inventors, but you must be careful that you get interested in a meritorious invention and one that is properly secured. It is not every letters patent that secures the most valuable part of the invention; look well to the claims. If you wish to make an application for a patent for yourself employ some one to do it for you that is conversant with the business.

"J. J. S., of Albany."—Your papers are now undegoing an examination at the Patent Office, and as soon as we hear, will advise you.

"Friend to Industry."—Your communication will be very acceptable, and no doubt useful.

"L. M. & Bros., of Mass."—We forwarded a box containing the model and engraving of your invention by Harnden's Express on the 20th, your account is all correct.

"W. H. B., of Va."—Such machines as yon wish information about are not generally for sale here, as we learn by enquiries. Nathan Chapin of Syracuse, N. Y., has a patent for a portable cider mill and would proably be able to give you all such information as you desire, you would do well to address him. The common screw press is used as a general thing in this section. Mr. Chapin's mill has been well spoken of but we have never seen it work, therefore cannot speak of it.

"H. A., of Providence."—$7 received. The Journal will be ordered, directed to you. We will inform you as soon as we hear in regard to the back Vols.

"A. S. McO., of Vt."—We would not advise you to apply for a patent for your Straw Cutter, as we believe it will not operate well, and we honestly cannot advise you to spend money on it.

"O. L. R., of N. H."—Your papers came safe, and an engraving will be executed immediately.

"H. M. G., of N. C."—We have not been able to get all the information you desired, yet.

"A. B., of N. Y."—$8 received:—we shall attend to your engraving as soon as possible.

We have been unable to answer several correspondents this week. We crave their indulgence for the delay.

Money received on account of Patent Office business, since May 15th, 1850:—

H. & B., of N. Y., $30; W. W. B., of Me., $30; T. Z., of N. Y., $15; F. S. T., of Ga., $20, and A. N. W., of Mass., $35.

Notice

Whenever any of our friends order numbers they have missed—we shall always send them, if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for cannot be supplied.

ADVERTISEMENTS.

Terms of Advertizing.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements must not exceed 16 lines, and cuts cannot be inserted in connection with them for any price.

Patent Office.

128 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms. Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

Arrangements have been made with Messrs. Barlow and Payne, Patent Attornies, in London, for procuring Letters Patent in Great Britain and France, with great facility and dispatch.

MUNN & CO.,
128 Fultonstreet, New York.

AUCTION NOTICE.—Peremptory Sale of Valuable Machinery, Tools, &c.—STONE & SOTHER will sell on Monday, May 27th, 1850, at 12 o'clock, at the Vulcan Iron Works, corner of Jay and Water streets, Brooklyn. all the machinery, tools, &c., in said works, comprising large Iron Planing Machine, (planes 6 feet wide, 4 feet high, 22 feet long,) Vertical Bar and Apparatus for Cylinders; one 8 horse power Steam Engine, boiler and shafting complete; Lathe, and other machinist's and blacksmith's tools and apparatus. The whole to be sold without reserve, as the premises must be immediately cleared. May be seen daily from 9 till 12 A. M. Terms cash. 1*

WOOD'S PATENT SHINGLE MACHINES.—These excellent machines, illustrated and described in No. 23, Vol. 5, Scientific American, are offered for sale in Town, County and State Rights, or by single machines. There are three sizes, the first cuts an 18 inch shingle, price, $100; 2nd cuts 24 inch, price $110; 3rd, 28 inch, $120. Orders addressed to J. D. Johnson, Easton, Conn., or to Munn & Co., "Sci. Am." Office, will meet prompt attention. 36 tf

WOODWORTH'S PLANING MACHINE—For sale, the right to use this justly celebrated labor-saving machine in the following States, viz. Pennsylvania and Virginia west of the Allegheny Mountains, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Georgia, Alabama and Mississippi. For particulars apply to Elisha Bloomer, 304 Broadway, or to E. P. Norton, Esq., Cincinnati, Ohio. 34 5*

IMPORTANT INVENTION.—GURLEY'S beautiful and unique machine for gumming saws, noticed in No. 50, Vol. 4, Scientific American, is now offered to the public as a most important desideratum for saw manufacturers and all who use saws, as they can gum the teeth with very little trouble.—Orders addressed to G. A. KIRTLAND, No. 205 South street, (p. p.), will meet prompt attention. 36 tf

TO STONE CUTTERS, QUARRY OWNERS, and others—The North American Stone Dressing Co., capital $168,000, are the owners of Wilson's Patent for Dressing Stone, and have established an agency in the city of New York. They are authorized to engage in quarrying stone to any extent and will entertain proposals either for purchase of the right to run machines under said invention, or for capital to aid in opening quarries on a large scale. Four machines are now in successful operation in N. Y. city, where they can be seen dressing stone of every degree of hardness, giving perfectly true surfaces and corners, and with a simplicity, efficiency and rapidity which will insure a highly profitable result to all who shall secure rights. Application can be made to

SHELTON, FLAGG & ANDREWS, Attorneys to the N. A. S. D. Co., 12 Wall st., N. Y. 36 1

IMPROVED FILTERERS.—Fessenden's Patent Pocket Filtering Tube. This is one of the most complete articles ever offered to the public, and is especially adapted to the use of travellers, by sea or land; it being light and compact, and the water being filtered by the very act of drinking. This filter having been duly patented, all persons are hereby cautioned against purchasing or using filters intended or calculated to infringe upon the rights of the patentee.

Fessenden's Division Filter.—This is the most perfect and scientific pressure filter now in use; it is more durable, more easily and thoroughly cleansed, and purifies the water more completely than any thing of the kind ever before invented. The above mentioned filters are for sale at the store of D. H. Butts & Co., 15 Canal st.; Horace H. Day, 23 Cortlandt street, and E. Bartlett, 31 Park Row, where purchasers are invited to examine them. Orders left with D. H. Butts & Co. promptly attended to. 36 4*

ANNUAL OF SCIENTIFIC DISCOVERY, or Year Book of Facts in Science and Art—The first edition of 2000 copies of this popular work has been all disposed of in little more than 4 weeks, and a second edition is now published.

From "The Builder," London, April 6, 1850.—"Mr. Timbs will doubtless be pleased to find his "Year Book of Facts" now the parent or prototype of a worthy and valuable trans-atlantic perennial which has just sprung up at Boston, U. S. Though honorably admitted to be based on it as its exemplar, that is by no means a copy, and indeed, though also a new compilation of the new facts of the year, there is much difference in detail, with a few peculiarities on the part of the American work, such as the admission of some original matter, or details not previously printed, and the re-arrangement or narration of others in the words of the editors themselves. But were we asked to decide which of these concurrent year-books is the best, we could only reply, perhaps, with strict propriety and conscientiousness, that both are best.—The work is typographically and otherwise well got up, and quite in the English style."

Published by GOULD, KENDALL & LINCOLN, Boston. 35 4

NEW STYLE AND IMPROVED SLIDE LATHE.—SCRANTON & PARSHLY, New Haven, Conn., will sell the best slide Lathe for $150 to $200 less than ever before sold. They are built in the most substantial manner—the heads geared and arbors large and of the best cast steel; the slide rest is held to the bed by guides, fed by a screw 2 in. diameter, and feeds from 80 to the in. to 5 1-2 in. pitch, working several hundred different pitch threads within these extremes. Besides the regular lathe feed it has the facing up feed. It is admirably adapted for holding and boring boxes, cylinders and turning and cutting screws. One extra large size face plate, centre rest and reversing pullies go with each lathe. The 12 ft. lathe weighs 4000 lbs. turning 8 ft. 5 in., price $450. The 15 ft. 7 in lathes 4500 lbs., turning 12 feet, $500, swings 26 in. For further particulars address as above, (p. p.) Other lathes for sale as heretofore. 34tf

MACHINE BANDS, RUBBER HOSE, &c.—After 20 years devoted to the manufacture of India Rubber, the undersigned feels confident of his thorough practical knowledge of the quality of goods in his line. The three factories now owned and operated by him, turn out large quantities of all kinds and styles of rubber goods in use, mostly vulcanized rubber. Orders for railroads, factories and merchants executed with intelligent regard to wants and best interest of the customer. Warehouse 23 Courtland st., N. Y.; 1 factory at Great Barrington, Mass., with whole flow of Housatonic river for power; 1 at New Brunswick, N. J., by steam power; 1 at Piscataway, N. J., water power. These 3 factories embrace machinery and apparatus costing over $50,000—enabling the owner to execute orders with more promptness than any other establishment in the United States.

33 10* HORACE H. DAY.

IMPORTANT INVENTION.—A new article of Machine Belting, made of a material never hitherto used for that purpose: 25 per cent. of power saved by its use. Its expense is 25 per cent. less than the patent stretched leather, or india rubber Belting. All sizes made and constantly kept on hand, from 1 inch in width to 30 inches.

CERTIFICATE.—J. McCarthy,—Having had several of your Flexible Cement Belts in use in our mill for the last 3 or 4 months, we cheerfully testify to their superiority, in many respects over any kind of belting we had hitherto used. ELIZUR CLARK, & Co.

This Belting is warranted to give satisfaction, or the money will be refunded. Manufactured only at Salina, Onondaga Co., N. Y. Orders are respectfully solicited. Address JOHN McCARTHY. 32 5*

UNITED STATES RAILROAD GUIDE and Steamboat Journal: a monthly publication, containing official time advertisements, and tables of all the R. R. Co.'s; stations, distances, fares, time of travelling—with all the principal steamboat and stage lines in the country; also, hotels, mails, postage, almanac, &c. The Guide Journal presents stronger claims to public patronage, and possesses superior advantages over all others of a similar nature. Dexter & Bro., General Agents. Sold by all News Dealers, and on all the railroad and steamboat stations throughout the United States. Single copies 12 1-2 cents; per hundred, $7. Yearly subscription $1,25. Publication Office 43 Ann st., N. Y.

GEO. R. HOLBROOK & CO., Publishers. 35 4*

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by

QUARTERMAN & SON,
36 3m Painters and Chemists

VENTILATION.—The Subscriber being desirous of making arrangements for the extension of a system of Ventilation, for which he has lately obtained Patents in the United States and Canada, as widely as possible, would be glad to hear of persons in the United States who would undertake its management in such sections and localities as might be agreed upon, especially New York and Boston. The whole operation is natural or spontaneous, and whilst it thoroughly ventilates it also, by the same operation in cold weather, warms the building to which it is applied—floors and all—and with an economy in fuel, far beyond any other means in use. It may be applied to buildings already erected, and cheaper than the present pernicious hot-air system, but if a good dwelling house be erected for the purpose, it can be applied to such building for a sum in many cases less than the estimate would be for furnishing it in the usual manner, without the ventilation. The subscriber wants no money down, but is willing to alienate his right for a trifling reservation upon each building ventilated. Letters post-paid to the lines will receive immediate attention until the first of June next. H. RUTTAN.

Coburg, Canada West, 8th April, 1850. 32 6*

THE AMERICAN UNION—The most carefully written and best arranged Paper in the United States. This Popular Paper is supplied with Selected Stories Humorous Sketches, Tales of Travel; Romances, Sketches of Real Life, Biographies, Poetry Serious Sentimental, and Humorous; Gems from New Works, Local Matters, Reviews Agricultural Treasuries, Scientific Novelties, Anecdotes, Glimpses of the Law, Opinions, Correspondence, Foreign and Domestic News, Congressional and Legislative Intelligence, Accidents and Casualties, Financial Articles, Markets, Miscellaneous Editorial Articles, amusing sketches, facts and fancies, such as never before has been in one publication. As a General Family Paper it is unsurpassed for the variety and completeness of its contents, and for the great care that is taken, while it shall amuse, to instruct and elevate the mind to a sense of its natural dignity. For the old, it will be found stored with experience—for the young, it will possess a charm that will not contaminate or cloy the taste. Published weekly by R. B. FITTS & CO., 22 School Street, Boston, Mass. Terms—Two Dollars per aunum, payable in advance. 32 8*

MANUFACTURERS' SUPPLY STORE. The subscribers would call the attention of manufacturers generally, to his stock of articles for the use of factories, both cotton and wollen, consisting of every variety and kind used by them, which he can offer at as fair rates as any other establishment in this or any other market.

He has also constantly on hand a full assortment of Leather Belting, revetted, stretched, and cemented, of all sizes, made from the best material, and in the best manner, warranted equal, if not superior to any made in this country, and at prices which must be satisfactory to those wishing a superior article. He is also agent for the sale of Cotton and Woolen Machinery of the most improved kinds. Those favoring him with a call will be satisfied, both in regard to quality and price. P. A. LEONARD, 66 Beaver st.

23 3m*

COTTON, WOOLEN AND SILK MANUFACTURERS' DEPOT.—ANDREWS & JESUP. No. 70 Pine st., N. Y., dealers in articles for the use of Cotton, Woolen and silk manufacturers, and agents for the sale of shearing, carding, burring, napping, wool-picking, flock-cutting and waste machines, regulators, satinet and jean warps, &c. Weavers' reeds and heddles, bobbins and spools, of every description, made to order. Sperm, lard and olive oils and oil soap. 34tf

FOR SALE—A second-hand Upright Steam Engine of six horse power, with Cylinder Boiler of 22 feet long, 24 inches diameter, together with fly-wheel and shaft, pump, furnace, and bars, complete.—This engine is one of Burden's make: has been used in all about four months, and is in capital order. The engine will occupy about 3 feet square, fly-wheel weighs about 550 lbs., and will be sold for the low sum of $550, delivered on ship board in good order. A draft for the above amount may be sent to

34 MUNN & CO.

MATTEAWAN MACHINE WORKS.—Locomotive Engines, of every size and pattern. Also tenders, wheels, axles, and other railroad machinery. Stationary engines, boilers, &c. Arranged for driving cotton,, woolen and other mill. Cotton and woolen machinery of every description, embodying all the modern improvements. Mill geering, from probably the most extensive assortment of patterns in this line, in any section of the country. Tools, turning lathes, slabbing, planing, cutting and drilling machines. Together with all other tools requried in machine shops. Apply at the Matteawan Co. Work, Fishkill Landing, N. Y., or at No. 66 Beaver st. New York City, to

24tf WILLIAM B. LEONARD, Agent.

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines, Dick's Presses, Punches, and Shears; Morticing and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 33tf

FOREIGN PATENTS.—PATENTS procured in GREAT BRITAIN and her colonies, also France Belgium, Holland, &c., &c., with certainty and dispatch through special and responsible agents appointed, by, and connected only with this establishment.—Pamphlets containing a synopsis of Foreign Patent laws, and information can be had gratis on application

JOSEPH P. PIRSSON, Civil Engineer,
33tf Office 5 Wall street, New York.

JONATHAN TAYLOR, Machinist, Montgomery, Alabama, begs leave to inform inventors and the public in general, that he is prepared to make patterns and models to order. He is also desirous of being appointed agent for the disposal of all kinds of patent machinery. Office on Commerce street, two doors from the Exchange Hotel. All letters must be post-paid. 32 10*

SASH AND BLIND MACHINE—Patented by Jesse Leavens, of Springfield, Mass., is the best Sash and Blind Machine now in use. The Machine cost $300 at the shop where they are made, near Springfield—extra charge for the right of using. The machine does all to a Window Sash and Blind except putting them together. Orders from abroad will be promptly attended to, by addressing JESSE LEAVENS, Palmer Depot, Mass. 22 20t*

TO SOUTHERN MANUFACTURERS and Sugar Planters.—The advertiser a practical machinist and engineer, at present employed as chief engineer of one of the largest manufacturing companies in New England, is desirous of locating South. Address M., Engineer, Lowell Mass. 35 6*

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Scientific Museum.

Receipts for Washing, &c.

This is a sorrowful deceiving world of ours, but as it is the best we have got, we must make the best of it. We know of no person for whom we have so much sympathy as a washing-day afflicted husband, especially those sentimental kind, who so frequently indulge in poetic rhapsodies about the thumping and scolding of their good wives on such occasions. We are happy to inform all such afflicted gentlemen that their sorrows are likely to have an end, if all stories are true. Twelve-trees, or green trees, or whatever is the name "charming name," advertises to settle the question for the small sum of one dollar, and Beavelt, on the other hand, displays a similar banner. These people know how to make good housewives happy on a washing day.—Receipts for mending broken china and crystal may be very well in their way, but they are insignificant things in comparison with labor-saving soap, and washing made easy.

It seems that the whole country has been flooded with pamphlets and paragraphs about rendering washing no job at all, that being performed merely by steeping and boiling without scrubbing and rubbing, as was done in the old fashioned way—all this to be taught by forwarding a dollar to the advertiser. Well, the price is not much and the information in the case of the Beavelt pamphlet, is well worth the money, but let us point to the philosophy of the business. The new receipts for washing made easy, is simply to steep the clothes on the night before washing, in some hot water and soap suds, and then make up a caustic ley composed of lime water and soda along with a bar of soap dissolved in it. This is to be used in boiling the clothes without rubbing, and then they are to be rinsed and hung out to dry. It is promised by all of these new fangled receipts that one person may do a washing for twenty before taking breakfast. As this is a feat worthy of Jack the Giant Killer, it would be a great blessing were it only a *fact*, but it happens only to be a *fiction*.

The bleacher of cotton goods, and the artistic shawl washer (a very particular business) have long been in advance of the domestic economist in respect to the purifying and cleansing of goods, and so far as what is termed *science* is concerned, we must say, that as a general thing, the majority of our scientific men are sadly defective in knowledge of the operative useful arts. Caustic ley made of soda and lime is used in every bleaching establishment and is the best liquid with which we are acquainted, for dissolving grease. It is this which combines with tallow to make soap, hence a little of it used in water for steeping clothes previous to washing, will soften the grease which may be in them, and enable it to be rinsed away in the water. But it is no labor-saving soap to mix good soap with caustic ley—it is the very reverse. The smallest possible amount of ley that can be used in washing, so much the better for the texture of the clothes. As caustic ley is very severe on the hands, we advise no one to use it who has tender hands. Washing is made easy by using an abundant supply of good soap. The following plan for white clothes, we believe is the best that can be used.

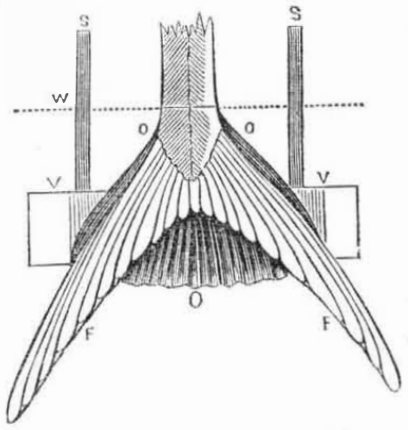
Dissolve a little soda in clean warm water, and steep the clothes for about twenty minutes. Then take them out and rub good hard soap on the creases that are most soiled, rubbing those parts between the hands or on the board, and then ring them out of the suds, and put then into a tub of warm water, in which has been dissolved some soft soap; pound them in this, then boil them, then rinse them in clean water, then blue them, ring them well and hang them out to dry. It is best to use a little soda in the boiling. No soap must be allowad to dry in the clothes, or they will appear in yellow streaks. There is indeed no necessity for so much rubbing, as a general thing, only those parts that are very dirty, such as wristbands, &c., without rubbing they will not be made clean; this is the universal testimony of all those who have used the advertised labor-saving soaps. It would be well if more good soap was used in washing clothes—it would save a great deal of labor. A bar of soap ought to be cut up into small pieces and dissolved in some water, and kept always at the side of the rubbing tub, and as the suds get weak, they should be strengthened by an addition of some more dissolved soap. When the suds get dirty, don't use them any longer for white clothes. Calicoes should be washed in strong cold suds,—so strong that they will feel slippery between the fingers; flannels should be washed in the same way, and then rinsed out in cold water, softened with a little soda. The soap should never be rubbed on calicoes nor flannels; calicoes of very indifferent colors can be washed with safety in cold suds—(but they must be quite cold.) Flour paste, beef's gall and all such things should be avoided. Cold strong suds, made of dissolved hard soap, is the best substance to use for white clothes, and calicoes and fine woolen colored goods should always be sent for washing to those who make it their business. About an ounce of borax dissolved in water along with a bar of hard soap for washing, is a most excellent substance for those who have tender hands, and it assists in the removal of grease and dirt along with the soap. It would be well if those who make their own soft soap in the country, paid particular attention to put no grease but that which is clean in their barrel, or if this cannot well be done, it is best to dissolve all the soap they use in warm water before washing, let it settle awhile, and then pour off the clear. This should also be done with dissolved hard soap, for there is some that is very dirty. The cleaner the soap is, so much the better for washing.

History of Propellers and Steam Navigation.

[Continued from page 280.]

MR. EWBANK'S (COMMISSIONER OF PATENTS) EXPERIMENTS.

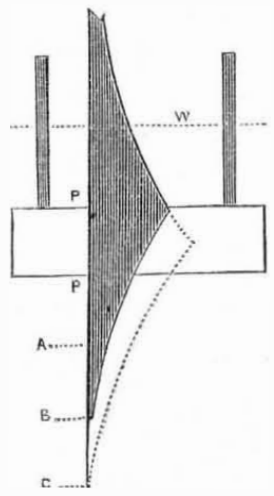
FIG. 56.



It is a very common thing to find men of very shallow head libraries, very egotistical in their notions. This class of men are the Don Quixotte's of Science; they battle with water mills and wind mills, and every new invention or new dissertation on some scientific subject that comes up, are sure to be smitten by them with great slaughter. It is not an uncommon thing to find men reviewing mechanical questions who know no more about what they are writing than they do about the craters of the moon, and among all the subjects which we have seen reviewed by small and large fry during the last ten years, the Report of the Commissioner, which we are are now publishing, has met with the most attention. Some reviews of it which we have seen are good, but the funniest thing of a review of the subject was one by an attorney, in one of our cotemporaries. It was funny, inasmuch as it proved the Report erroneous in supposing that paddles which decreased downwards in their areas were better than those which had an accumulated surface toward the propelling extremities, whereas the Report is based conclusively upon the superiority of the latter kind of propeller over the former.

The Report again says "the expansion of the lower part of the paddle and its contraction above, is nature's own plan," and this it sets forth by the annexed diagrams of the tails of fast and slows fishes. Fig. 56 shows the combination of the tails of a fast and slow swimming fish and a steamer's blade. The dark part of the figure O O O is the caudal paddle of a fresh water bass, a slow swimmer, and to give it the speed of the dolphin it should be constructed with the lobes, F F (dolphin) which will have the same material as O O O, but the propelling lever will extend further from the fulcrum, and will have a longer sweep and therefore exert their force to propel for a longer period on the water.

FIG. 57.



Suppose N W, the water line and the parallelogram V V, a steamer's blade, attached to the arms S S. The vessel's speed is required to be increased. How is it attained? Almost always by adding to the surface laterially at V V. Thus, as has been remarked, the ocean steamers now in progress in New York—supposed to embrace every possible improvement—have the paddle planks 14 feet, (some boats have them 22 feet!) stretching that distance from each side of the vessels; as if half the surface, disposed after nature's mode, would not be equally sufficient and with the same power; for, saving of power is as essential a result of improvement in form, as of approaching the truth in any other particular.

Suppose P P, Fig 2, represents one of those enormus blades about to be enlarged to make a vessel go faster, is it not apparent that by altering its figure to that shown by the dark tint, the rule of nature being followed, superior results must ensue; and this not by adding to, but actually dispensing with about one-half of the propelling surface. Were the boundaries extended to the dotted lines, the area would still be nearly one-third less than the original. In this type of blade a quality unkown in common ones is relieved, viz: every horizontal section bears a like amount of strain, and contributes equally to the work done, although their areas differ so materially; thus the portion included between the lines A P, from the larger sweep it has to take, equals the larger portion between P P; and for the same reason the section A B, equals A P;—increased range compensating for diminished surface. [This is a point which, I believe, no engineer has yet brought out. The idea is a new one in artificial propelling.] In this also, we see there is nothing accidental, or without deep meaning, in nature's works.

The ordinary mode of increasing the efficacy of paddles has been to widen the levers instead of lengthening them. Thus the jar arising from 14 to 20 feet planks striking the water, is a constant source of destruction to both vessel and machinery, while with blades, as figured above, it is annihilated, and the enormous amount of power consumed by it, saved.

Miscellaneous Receipts.

A rod of wrought iron, 1 inch square and 3 feet long, weighs 10·08.

A rod of cast iron, of the same dimensions, weighs 9·668 lbs.

A circular rod of wrought iron, an inch in diameter, and 3 feet long, weighs 7·89 lbs.; and of cast iron 7·567 lbs.

In converting iron into steel, a hundred weight of iron combines with from 4 to 12 ounces of carbon; the former proportion producing very mild steel, and the latter being the maximum dose for any useful purpose.

Steel, says Faraday, will not combine with more than 1-500th its weight of silver; 1-100th of rhodium or barium producing an excellent alloy with steel.

A rod of very good wrought iron, 1 inch square, will support 30 tons without breaking.

A piece of steel which measured 2·769 inches when soft, was found by Mr. Pednington to measure, after hardening, 2·7785 inches; and when tempered to a blue, it measured 2·768 inches.

The following are the degrees of temperature at which steel assumes its various shades of color:—430 and 450° a pale straw and yellowish tinge; 460° a straw color; 500° bright brownish yellow; 520° brown; 540° red; 560° purple, and 580° a uniform deep blue. Weakened to a water color, the last tint distinguished before the metal becomes red hot.

At the imperial gas works, London, one bushel of quick-lime purifies on an average, 10·000 cubic feet of gas. At Cheltenham 1½ bushel of quicklime, reduced to a state of hydrate, will purify 10·000.

LITERARY NOTICES.

GRAHAM'S MAGAZINE, for June, appears upon our table through Messrs. Dewitt & Davenport, Agents, Tribune Buildings. The illustrations are exceedingly rich and beautiful, among the most prominent of which are "The Queen of the Woods," a line and stipple, by Tucker; and "The Jolly Ride," by Butler, executed in the highest style of the art.

We are indebted to the publisher for a magnificent steel engraving of the charming Jenny Lind, which, we are informed, will constitute the leading feature in the July number. That Jenny is beautiful no one can deny after seeing this likeness, and we advise the Prince of Iranistan to secure a large edition of the Magazine for gratuitous distribution among the devotees of handsome faces and bewitching attitudes, for here we have Jenny, (not only as pretty as art and fancy could depict her) but as she appears warbling the sweet notes in "La Somnambula."

SARTAIN'S MAGAZINE OF LITERATURE AND ART for June, is also rich in embellishments, and varied and interesting in its contents.

PETERSON'S LADIES' NATIONAL MAGAZINE closes its half yearly volume with this number, and promises well for the new. All of the above magazines are for sale by Dewitt & Davenport.

AN INTRODUCTION TO THE WATER CURE.—Those enterprising publishers, Messrs. Fowlers & Wells, 129 and 131 Nassau street, have just issued a neat little shilling work of the above title, the object of which is to prove that water is the only medium required for the curing of all maladies.

THOUGHTS ON DOMESTIC LIFE.—Another shilling work, showing how to promote concord and how to avoid discord in social life, by the same publishers, Fowlers & Wells.

STRATAGEMS.—An interesting juvenile story, by Mrs. Newton Crosland, with four illustrations, has just been published, and is for sale by John S. Taylor, Nassau st.

TO INVENTORS AND MECHANICS.

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The Best Mechanical Paper IN THE WORLD!

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is commenced about the 20th of Sept. each year, and is the best paper for Mechanics and inventors published in the world.

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500 MECHANICAL ENGRAVINGS

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TERMS: Single subscription, $2 a year in advance; $1 for six months. Those who wish to subscribe have only to enclose the amount in a letter.

A PRESENT!

To any person who will send us Three Subscribers, we will present a copy of the PATENT LAWS OF THE UNITED STATES, together with all the information relative to PATENT OFFICE BUSINESS, including full directions for taking out Patents, method of making the Specifications, Claims, Drawings, Models, buying, selling, and transferring Patent Rights, &c.

N. B.—Subscribers will bear in mind that we employ no Agents to travel on our account.

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